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**Volume 3 Number 4**





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COVER: On top of the bare, battered knob of "Elaine 2", a dug-in M-24 Light Tank goes "bunker hunting" with it's 75mm gun, as the commander observes. Elaine 2 was a part of the French defenses at Dien-Bien-Phu; see Page 4 for more on armor at Dien-Bien-Phu. Our cover illustration is a charcoal rendering by Norb Meyer.

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The AFV-G2 is a magazine, published monthly, for Armor Enthusiasts, with the purpose of gathering and disseminating information about Armored Fighting Vehicles and their employment; to provide an opportunity for persons seriously interested in the History of Armored Fighting Vehicles, in the modeling of these AFV's and associated equipment, and in the playing of military Wargames utilizing miniature AFV's, to share ideas and items of mutual interest, and to promote an interest and awareness in the subject of AFV's.

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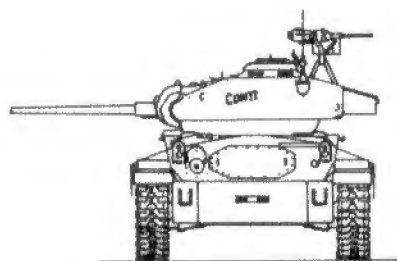
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# TANKS of DIEN-BIEN-PHU

by John A. Loop



From 1946, after the end of World War II., until 1954, France fought vainly to hold Indo-China (that area which we now call North Vietnam, South Vietnam, Laos and Cambodia) as a part of its wide-spread colonial empire. The largest and most decisive battle of the Indo-China war took place at "Dien-Bien-Phu", a mountain valley located in the northwest part of present-day North Vietnam, along the Laotian border. The French constructed the Dien-Bien-Phu fortress in an attempt to force the Viet Minh (\*) communists to fight a meeting engagement, instead of the typical guerilla tactics of

hit-and-run warfare. The French seriously erred in that 1) they did not believe the Viet Minh could succeed in a meeting engagement, and 2) their own logistical and air support was seriously inadequate to sustain the fortified valley. Instead of defending the hills surrounding the Dien-Bien Phu valley, the higher French command chose to fortify the valley floor, surrounding the airstrip. The fortifications (both French and Viet Minh) were in a constant state of construction from November 20, 1953 until Dien-Bien-Phu fell to the Viet Minh on May 7, 1954. Some of the elite forces of the French Army fought during this period with much bravery, high losses and great honor, trying to hold together France's pre-war empire, in vain. The French forces were made-up of Airborne and Foreign Legion troops, as well as "colonial" Vietnamese, Moroccan and Algerian units (see Order of Battle Table for a partial list of these units).

Aside from the fortifications, two factors were to play a decisive part in the defense of the Dien-Bien-Phu valley. These were 1) the French Artillery (two Battalions of U.S. made 105mm howitzers and one Battery of 155mm howitzers and numerous mortars) and 2) one "composite" Squadron of tanks from the 1er Régiment de Chasseurs à Cheval (or 1st Armored Cavalry Regiment) consisting of ten light tanks.

The tanks of this light tank squadron were air-lifted into Dien-Bien-Phu during December of 1953. These light tanks were American manufactured M-24 "General Chaffee" reconnaissance tanks, mounting 75mm guns. The armored vehicles were factory-new, having been delivered to the French by American military aid programs. Since the French possessed no cargo-aircraft that were capable of air-lifting even the M-24's, it was necessary to disassemble the light tanks in

Hanoi, and then fly the pieces of the ten tanks into the valley. Each tank required five C-47 transports and two British-built Bristol freight aircraft to carry it disassembled; the Bristols with their clam-shell nose doors were necessary to transport the tank hulls (weighing 4-tons ea.) and the turrets.

Within a few days after the arrival of the tank parts, the

## 3e Escadron, 1er Régiment de Chasseurs à Cheval

Unit	Tank's Names	Commanders and Replacements
Squadron Hq.	BAZEILLE	Capt. Yves Hervouët, 1st Lt. Adenot
First Platoon	CONTI	WO Aristide Carrette, 2d Lt. Mengalle Sgt. Boussrez
	DOUAUMONT	
	ETTLINGEN	
Second Platoon	AUERSTAEDT	Sgt. Guntz, Sgt. Ney
	POSEN	
	SMOLENSK	
Third Platoon	RATISBONNE	Lieut. Henri Préaud MSgt. Cancilieri
	NEUMACH	
	MULHOUSE	

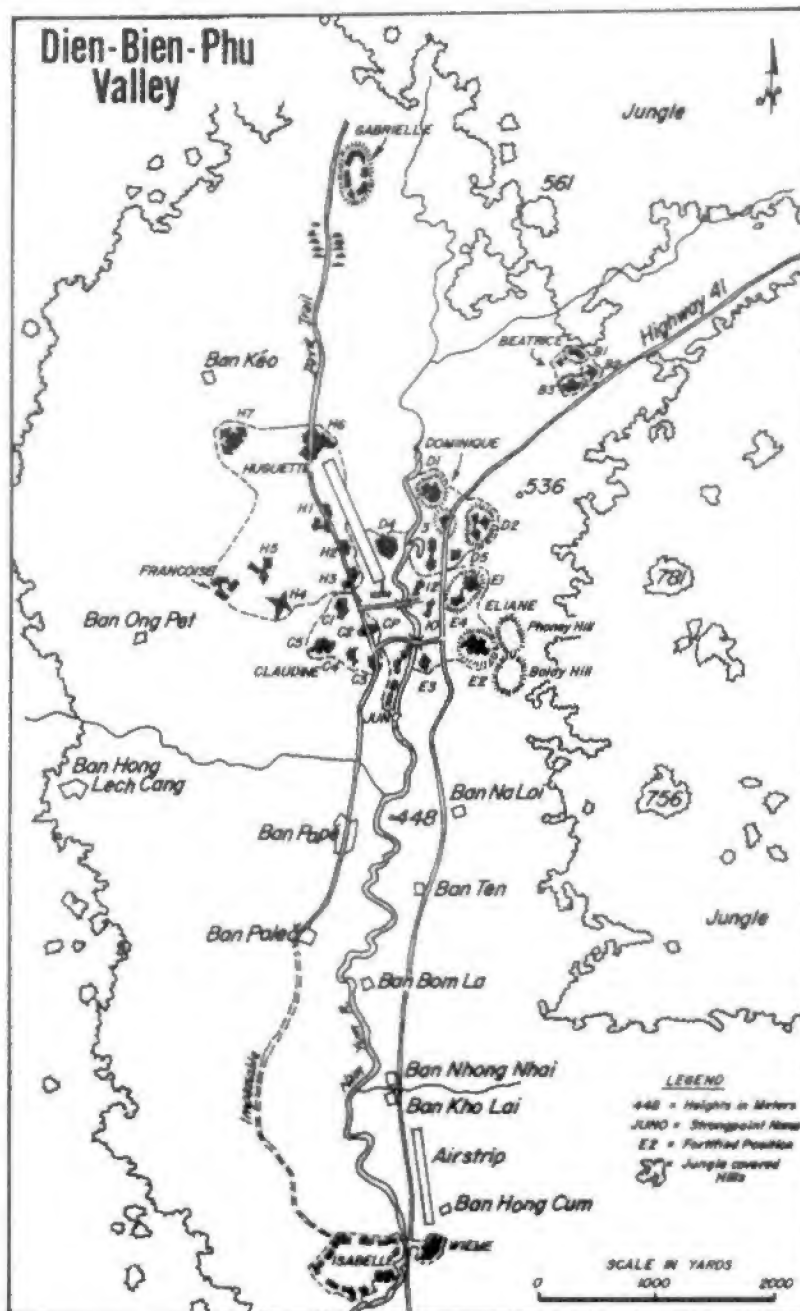
(\*) Later to become the North Vietnamese Peoples Army

5th Foreign Legion Automotive Repair Company (5e CRALE) had set up a primitive assembly line adjacent to the metal-planked airstrip. There, these few men assembled ten light tanks, piece by piece, in the heat and blowing sand of the fortress valley. The only heavy tool available to the mechanics was a lifting-rig borrowed from the artillery; this was used to lift the tank engines into the hulls. Everything else was done by hand! Probably only a unit such as the Foreign Legion could have done the job, since all of the assembly instructions were in English (the US Army Technical Manual) and Legionaire mechanics have always been famed for their ingenuity and skill. Every part of the tanks had to be cleaned numerous times of the dirt as the tanks were assembled. Fantastic as it may seem, the primitive assembly line reached an assembly speed where one M-24 was completed every two days!

On Christmas Day, 1953, the first platoon of tanks became operational, with M/Sgt. Aristide Carrette as the Platoon Leader. Within a few days, the Squadron was at full strength. The newly assigned Squadron CO was Captain Yves Hervouët, a rather slight, spectacled young officer who was to lead his unit with great gallantry (he later died in a Viet Minh prison camp). His company, now redesignated as 3e Escadron (3rd Squadron) of the 1er RCC, consisted of three Platoons of three tanks each, and a small operational headquarters with one tank. In accordance with standard French armor practice, the tanks

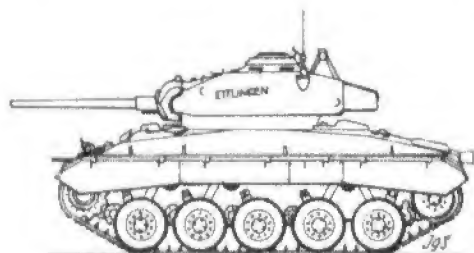
were named after cities or towns, or famous battle places; these names were painted in white capital letters on the turret sides of the tanks. These names were also used as the individual tank radio call-signs. One of the three Tank Platoons, commanded by Lieutenant Henri Préaud, was assigned to Strongpoint "Isabelle", which was located some 3-1/2 miles to the south of the main positions. The Squadron Headquarters and the other two Platoons were assigned to the main fortress. The engineers constructed bunker-like revetments, dug-into the side of a hill near the central Command Post, and the tanks remained "under-ground" when they were not needed, emerging like beetles from the ground when called on for a counterattack. These bunker positions enabled maintenance to be performed, and repairs to be made, with the crews in some sort of protection from the deadly Viet Minh artillery shellfire. The seven tanks of Dien-Bien-Phu (and the three from "Isabelle") had a nickname; they were familiarly called the "Bisons", and they became welcome and eagerly sought help to the beleaguered units who were often threatened by overwhelming attack.

The first offensive actions of the "Bisons" apparently took place on February 1st, 1954, as the tanks were used to back-up a sortie by the French forces against suspected enemy positions. The tanks were needed to extricate the French units from the fire that pinned them down. Of course, this



type of usage was common. After the actual start of the Viet Minh siege, on March 13, 1954, the M-24 light tanks were in daily use. The first French position to fall was "Beatrice", manned by the Foreign Legionnaires of 3/13 DBLE, and the armored vehicles were unable to get to the position in time to stop the attack. This position was later occupied, but the fortifications were so badly damaged that it was useless to re-man them. Next to fall was "Gabrielle". The French counterattack used the seven light tanks but it arrived too late to save the position; Viet Minh artillery had slowed the accompanying infantry of 5e BPVN and the French lost over 1000 men when "Gabrielle" fell.

The only real problems that faced the "Bisons" in their daily operations was the Viet Minh use of anti-tank rocket launchers (bazookas) and 57mm recoilless rifles, which they were plentifully



equipped with. It was not unusual for each tank that participated in an operation to be hit at least once with rocket fire. Indeed, tank "Ettlingen" was hit 6 times by 57mm fire on March 31st and it still remained operational. Some of the tanks took rocket hits in the engine compartment, and had to be towed back to the bunker positions for repair. In some cases, repair was impossible; tank "Bazeille" was hit and burned out on March 31st, and it was towed to E2 where it was used as a pillbox. Due to the numerous hits, the tank crews suffered far more than the vehicles. There was a continuous shortage of trained

tank crewmen, and replacements (sometimes without paratroop training) were parachuted in on several occasions. Capt. Hervouët and Warrent Officer Carrette were both wounded, and they still led their units until forced to stop. 1st Lt. Adenot and 2nd Lt. Mengalle were parachuted in, as the help needed to keep the company in operations. As the siege progressed, it became more and more difficult to keep the tanks running. The operational strength slowly dropped, to five, and then to three tanks that were able to be used. The two Platoons in Dien-Bien-Phu were usually used as a single Tank Platoon, under the command of whomever was able to lead the counterattacks. The single Platoon at "Isabelle" was able to keep two tanks in running order, even though one of them had been the victim of a direct 105mm artillery hit, which wounded all of the crew. By the time of the final Viet Minh attack which overran the French garrison, only one tank was still in running order. This tank was destroyed by draining the crankcase oil from the engines, and then running the tank until the engines froze, thus keeping the Viet Minh from using the tanks again. Even though the defense of Dien-Bien-Phu proved impossible, the tanks of the 1er Régiment de Chasseurs à Cheval were one of the very strong points of the French defense; their conduct was superb.

#### ORDER OF BATTLE - FRENCH ARMY AT DIEN-BIEN-PHU

March 1954

FOREIGN LEGION		
1st Battalion, 13th Foreign Legion Half-Brigade	1/13 DBLE	1er Bataillon, 13e Demi-Brigade de Legion Etranger
3rd Battalion, 13th Foreign Legion Half-Brigade	3/13 DBLE	3e Bataillon, 13e Demi-Brigade de Legion Etranger
1st Battalion, 2nd Foreign Legion Infantry Regiment	1/2 REI	1er Bataillon, 2e Régiment Etranger d'Infanterie
3rd Battalion, 3rd Foreign Legion Infantry Regiment	3/3REI	3e Bataillon, 3e Régiment Etranger d'Infanterie
1st Foreign Legion Parachute Battalion	1 BEP	1er Bataillon Etranger de Parachutistes
* 2nd Foreign Legion Parachute Battalion	2 BEP	2e Bataillon Etranger de Parachutistes
COLONIAL UNITS		
* 1st Colonial Parachute Battalion	1 BPC	1er Bataillon de Parachutistes Coloniaux
* 6th Colonial Parachute Battalion	6 BPC	6e Bataillon de Parachutistes Coloniaux
2nd Battalion, 1st Algerian Rifles	2/1 RTA	2e Bataillon, 1er Régiment de Tirailleurs Algériens
3rd Battalion, 3rd Algerian Rifles	3/3 RTA	3e Bataillon, 3e Régiment de Tirailleurs Algériens
5th Battalion, 7th Algerian Rifles	5/7 RTA	5e Bataillon, 7e Régiment de Tirailleurs Algériens
1st Battalion, 4th Moroccan Rifles	1/4 RTM	1er Bataillon, 4e Régiment de Tirailleurs Marocains
2nd T'ai Battalion	BT 2	2e Bataillon T'ai
3rd T'ai Battalion	BT 3	3e Bataillon T'ai
* 5th Vietnamese Parachute Battalion	5 BPVN	5e Bataillon de Parachutistes Vietnamiens
T'ai Partisan Mobile Group No. 1	GMPT 1	Groupe Mobile de Partisans T'ai 1.
METROPOLITAN UNITS		
8th Assault Parachute Battalion	8 BPC	8e Bataillon de Parachutistes de Choc
* 2nd Battalion, 1st Parachute Light Infantry Regiment	2/1 RCP	2e Bataillon, 1er Régiment de Chasseurs Parachutistes
Composite Squadron, 1st Armored Cavalry Regiment	1 RCC	3e Escadron, 1er Régiment de Chasseurs à Cheval
31st Engineer Battalion	31 BG	31e Bataillon du Génie

NOTES- Order-of-Battle does not include Headquarters, Artillery, Signal or other support units.

\* Indicates units para-dropped into Dien-Bien-Phu, either in part or in their entirety.

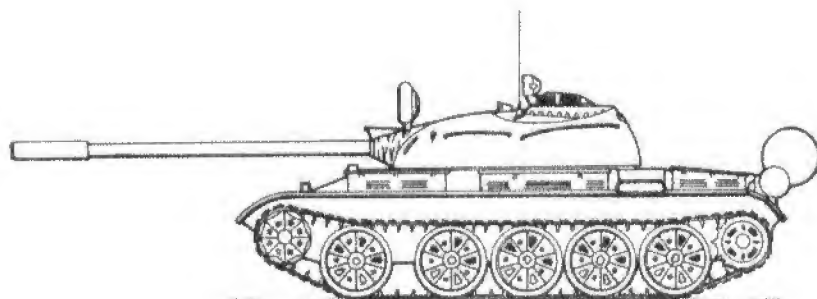




# ARMOR G-2

Current Data on the World's  
Armored Forces .

by J. C. Johns



*T-55 Medium Tank (ex-Soviet)*

appears similar to the British Chieftan, but it is armed with a 105mm gun and has thinner armor protection.

ISRAEL: The Israeli Army is in the process of purchasing and installing Hughes laser rangefinders in their tanks. This rangefinder is very similar to that now being mounted in U.S. Army M-60A1 medium tanks.

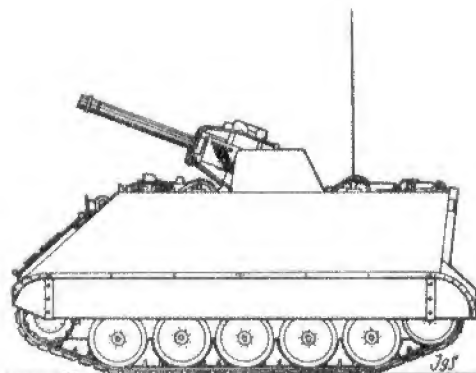
SOUTH AFRICA: Panhard AML-60 and AML-90 light armored cars are now being manufactured under license in South Africa. The AML-60 mounts two light machine guns and a 60mm mortar, and it is an ideal weapon for counter-insurgency purposes.

UNITED STATES: The XM-163 Armored AA Vehicle "Vulcan" has been in service in South Vietnam with U.S. Army Self-propelled Anti-aircraft Battalions. The six-barreled, 20mm Gatling gun "Vulcan" (M-61A1) is an ideal low-level tactical AA weapon, firing up to 3,000 shots per minute. It is mounted on a modified M-113 Armored Personnel Carrier chassis. The current unit lacks the vehicle-mounted radar, since there is little in the way of aircraft for the guns to engage.

ITALY: Fiat of Turin, Italy has been licensed by MTU of West Germany to produce the MB-838 diesel engines for the 600 Leopard tanks that are to be manufactured in Italy. The first 200 Leopards for the Italian Army are now being delivered; these are being manufactured in Germany while the Italians are tooling-up for their own production of this tank.

GREAT BRITAIN: A much-modified Ferret Mark V. light armored car has now been released. This version is hoped to extend the useful life of the vehicle for a number of years; it has a turret mounting four Swingfire missile launchers (two on each side of the turret) which are retractable into the hull. The vehicle also mounts a 7.62mm General Purpose Machine Gun in the turret.

Comments and contributions are welcomed from readers interested in information about the World's armor. Send items to "AFV-G2", Attention: "Armor G-2 Section"



*XM-163 Armored Anti-aircraft Vehicle "Vulcan"*

# The History and Development of Czechoslovak Armored Fighting Vehicles

## Part III.

by Jiri T. Vojta

### How did Czechoslovak Tanks Prove Themselves in Battle ?

Under the Czechoslovak flag, Czech armor fought only against the Sudeten-German Freikorps, in the summer of 1938. This was hardly a battle test, since the Freikorps had no heavy weapons. The tanks, however, drove over hundreds of home-made mines planted by the Freikorps with no damage whatever to the vehicles. In Krumlov, a town actually captured by the Freikorps, one Czech LT Vz. 35 fought all day inside the town's medieval wall, shooting into the houses from which rifle fire was coming. During the battle, the 37mm cannon from this tank shot-up a machine



gun nest located on top of the Krumlov castle tower, some 800 meters away. Later, armor-piercing shot was found stuck deep into the tower's masonry. Later during the fight, the same gunner with the same cannon succeeded in toppling a flag pole flying a Nazi flag from the castle tower at a distance of 800 meters. By the evening, the town surrendered back to the Czechs. The 37mm gun had proven so accurate that the gunner reported using it as one would a rifle shooting against individual targets, often inside of houses. After the town was re-captured, this claim was verified; corpses were found pierced by 37mm armor-piercing shot inside of houses, and even inside the castle

itself, often 500 meters or more from the tank's position.

The LT Vz. 38 light tank also fought on the Russian front, not only with Rumanian units, but also with the Slovak Fast Division. Both Slovak and Rumanian reports declared the tank excellent. The V-8-H medium tank, fighting with the Slovaks in Russia, was capable of destroying the T-34 with ease at closer ranges. In 1944, the army of the Slovak Free State finally turned against the Germans, and the LT Vz. 38 and V-8-H tanks were called-on to fight against the Tiger and Panzer IV tanks. The reports of these battles were grossly exaggerated, but a good many German tanks were destroyed; their rusty hulls are still visible in central Slovakia today; excellent testimony for the fighting capability of Czechoslovak armor.

### Czechoslovak Tanks Exported to Foreign Countries

Iran: The first contract for tanks to be supplied to Iran called for 50 tanks; these were to be the light version of the LT Vz. 38, designated as the AH-IV. They were exported in 1936. These vehicles weighed 3.9-tons and were armed with two machine guns. An additional contract called for 50 of the cannon-armed, export-version of the LT Vz. 38 tank, designated as the TNH. These were manufactured and exported to Iran in 1937. All of these tanks were manufactured by CKD.

Rumania: The CKD factory modified the light AH-IV tank to conform to Rumanian requirements, and some 35 of these tanks, designated as the R-1, were exported to Rumania in 1937. The tank was armed with two machine guns and weighed 4.2-tons. It was powered by a Praga AH engine which gave the tank a top speed of 45 km per hour.

Sweden: A total of 142 modified LT Vz. 38 tanks were manufactured by CKD for Sweden.



Of this total, 50 tanks were of the light (4.2-ton) variety, designated as the AH-IV-Sv. These tanks were delivered without engines or guns; the Swedes mounted their own engines, the Volvo-Göteborg in most cases, and their own weapons. These were the 37mm Bofors cannons. The machine guns mounted in Sweden appeared to have been Schwarlose-like water-cooled weapons, details are not certain. They were mounted in ball-mounts. The Swedish contract was completed in 1938. The heavier tank that was supplied to Sweden was designated TNH-Sv and it was the heaviest of all of the LT Vz. 38 variants, weighing 8.8-tons.



Switzerland: 24 modified LT Vz. 38 tanks were exported to Switzerland in 1938, designated as the TNH. These vehicles, like the Swedish ones, were supplied without engines or armament. The Swiss supplied the Sauer Diesel engines, and they mounted the excellent Oerlikon 24mm anti-tank cannons in the turrets, along with three machine guns. These tanks served through the war years and even into the post-war period in reserve tank units.

Peru: A 1938 contract with CKD called for the production and delivery of 24 modified LT Vz. 38 tanks to Peru, designated as the LTP. In all technical aspects, they seem to have been identical with the standard LT Vz. 38, with the standard Praga engine and Skoda 37mm Cannon.

Lithuania: The 1938 contract between CKD and Lithuania was only completed after the German occupation. In fact, during the mobilization of the Czechoslovak armed forces, the military command temporarily confiscated the Lithuanian tanks that had already been completed, but since Czechoslovakia did not fight, these tanks were not even taken out of the factory yards. In 1940, the heaviest armed version of the LT Vz. 38 tank was exported to Lithuania; in size this contract called for 21 vehicles. These vehicles were designated as the TNL. All of these vehicles fell into Soviet hands a few months after delivery, when Lithuania became a part of the USSR. The Lithuanian version was armed in a most unusual manner: in the turret, it had the standard Skoda 37mm cannon, but the machine guns were mounted later, after arrival in Lithuania, and the exact type of these guns is not known. These weapons, as shown in photographs, had water-cooled jackets, so they could have been Polish Maxim's, or even Russian Maxim's, or even British Vickers. . . . . In addition to these weapons, the Lithuanian version of the tank mounted a fixed 20mm Oerlikon cannon on top of the left track guard (in a steel box). This weapon, being fixed in position, could only be aimed by moving the whole tank; it was fired by the driver.

Yugoslavia: In the early 1930's, a small number of Vz. 33 "baby" tanks were exported to Yugoslavia, where they replaced the only Yugoslav tank, the Renault FT-18. The Vz. 33 tanks, after the occupation of Czechoslovakia and Yugoslavia by the Germans, were used only as tractors by the Luftwaffe, in most cases to retrieve aircraft after forced landings.

### Photographs

A few notes about the photographs that appear with this article. The three photographs that appeared with Part II. of this article (in the last issue) are of a LT Vz. 38 tank, formerly of the Slovak Free State. When the 1944 rebellion took place, this tank was a part of the uprising against the Germans. When the Germans finally retreated out of central Slovakia, they left this tank in excellent running condition outside of a church in Banská Bystrica. It is today preserved outside of the museum in that town. Once a year, to commemorate the Slovak uprising, the vehicle is started, and driven through the town. Thus, it is one of the very few operable LT Vz. 38 tanks left in the world. The photograph at the head of this page shows the rare V-8-H medium tank that formed a part of the Slovak Free State army. Few photographs are available of this tank that show details; I apologize for the poor quality of the picture, but it is the best that I have.

In closing, should any reader have questions about Czechoslovak armor, or on this article, or on ideas for a future article, please drop the author a line, in care of AFV-G2. I would be most pleased to receive reader comments and constructive criticism.

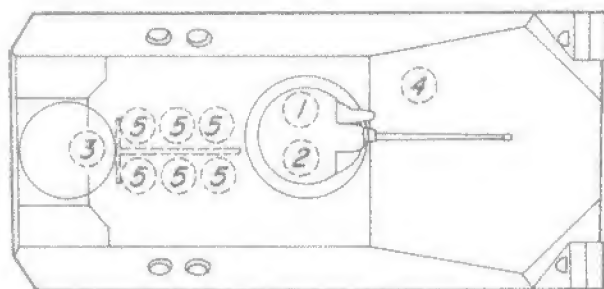
# "MARDER" the new Standard SPW of the Bundeswehr

by James Steuard

In the 1950's, when Germany was in the process of re-arming, the question of Armored Personnel Carriers for the new Bundeswehr arose. Since there were no suitable foreign-produced vehicles available, the quick development of a vehicle for this purpose became mandatory. The result was the HS.30. This was an APC that demonstrated some of the attributes of an armored infantry carrier; it had excellent forward armor slope, it was low in silhouette and it appeared to perform as well as the APC's of other NATO nations. It did have several real disadvantages how-

ever. First, the rapid development and testing did not disclose the engine and transmission problems that were to plague the vehicle. Continuous modifications were done to the HS.30 during its service life to attempt to eliminate these problems. Secondly, there was no provision for the infantrymen to fire from the vehicle while on-the-move, without exposing them to hostile fire. The Germans had learned the value of intensive fire from assaulting infantry vehicles during World War II, and this was considered a very important goal for future armored infantry carriers. Lastly, there were no dismounting doors at the rear of the HS.30, and it was necessary for the infantry to dismount by leaping out of the roof hatches and dropping over the sides of the APC. This method of dismounting was wholly inadequate in the eyes of the officers of the armored branch of the Bundeswehr. As time passed, the need for a more modern vehicle became more pressing.

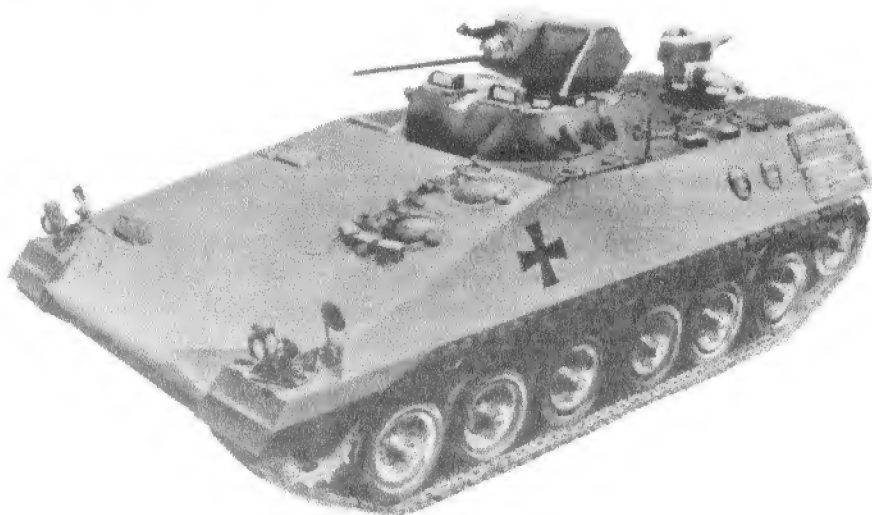
A lot of time was to pass, however, before a second-generation Schützenpanzerwagen (or SPW, Armored Infantry Carrier) could be developed. Since the HS.30 was in service, higher priorities were established for the development of a 90mm cannon-armed Tank Destroyer, and then a Main Battle Tank (the Leopard) to combat the armor of the Eastern Bloc nations.



*Schematic Overhead View - SPW "Marder"*  
Dotted circles show crew positions; numbers refer to text.

the new "Marder" SPW's will have entered service with the Bundeswehr, equipping over 35 Panzer-grenadier Battalions.

The "Marder" is a very low vehicle, with a total height to the top of the turret of only 9.38 feet. It has a very well sloped front armor plate, which can withstand 20mm armor-piercing shells.



The vehicle's armor thickness was planned so that the vehicle is immune to artillery airbursts up to 155mm caliber. The "Marder" is also fast; at least as fast as the Leopard Main Battle Tank that it is supposed to accompany into battle. The power-to-weight ratio is so good that the "Marder" has an excellent acceleration curve; in fact, far better than any other free-world APC.

It is in the area of vehicular armament that the "Marder" surpasses other Armored Personnel Carriers, though. First of all, there is a turret weapons system, consisting of a 20mm automatic cannon and a 7.62 mm MG3 machine gun, paired together in the two-man turret. The guns are positioned above the heads of the Vehicle Commander (2) and Gunner (1); this positioning has two advantages for the "Marder". First, since the guns are mounted on top of the vehicle, most of the "Marder" can remain under cover ("hull defilade") with only the guns exposed while waiting in ambush. Secondly, the visibility of the Commander and Gunner is excellent; there are no protrubances to block the direct path of vision (as is the case on the Product Improved M-113A1, with its' separate gun turret and Commander's cupola behind it). The 20mm automatic gun is provided with dual feed systems; one carrying HE shells and the other carrying AP. These rounds can be selected by the Gunner as required, instantly. The MG3 is provided for those targets that do not require heavier suppressive fire. Both the Commander and Gunner are provided with optical sights and firing mechanisms. The front mantlet of the small turret also mounts six smoke dischargers, positioned to throw smoke grenades in front of the vehicle to cover its withdrawal if needed.

At the rear of the "Marder" appears another small turret, mounting one 7.62mm MG3 in a streamlined modern-looking housing. This gun turret is manned by the Assistant Infantry Squad Leader (3). He can fire the weapon to either flank, as well as to the rear. In addition, the weapon can be angled downward to fire into foxholes or trenches that the "Marder" is crossing.

The six Infantrymen that are housed inside of the armored body of the "Marder" are provided with bench style seats facing outward; three seats to each side. Directly over each seat is a roof hatch, and the infantrymen have a choice of two seats for each seat position; one high (so that the head and shoulders of the man are above the roof hatch) and the other low (so that the man is under full armor cover). Individual firing ports are provided for four of the infantry; two ports per vehicle side. These ports are ball-mounted, with the opening for the weapon rotating into the side of the vehicle when not in use. The standard UZI sub-machine gun can be fitted into the aperture of each port and the infantryman has a fairly good field of fire for approximately 100 meters effectively. Thus, the individual infantrymen can fire from the vehicle with full protection from enemy fire.

If it is necessary, the infantry group can be dismounted; the rear door drops to permit the group to exit on both sides of the rear turret. The Gunner and the Driver (4) remain in the vehicle. This permits suppressive fire on call from the turret, and the vehicle can be moved by the Driver as needed. It should be stressed that German tactical doctrine does not

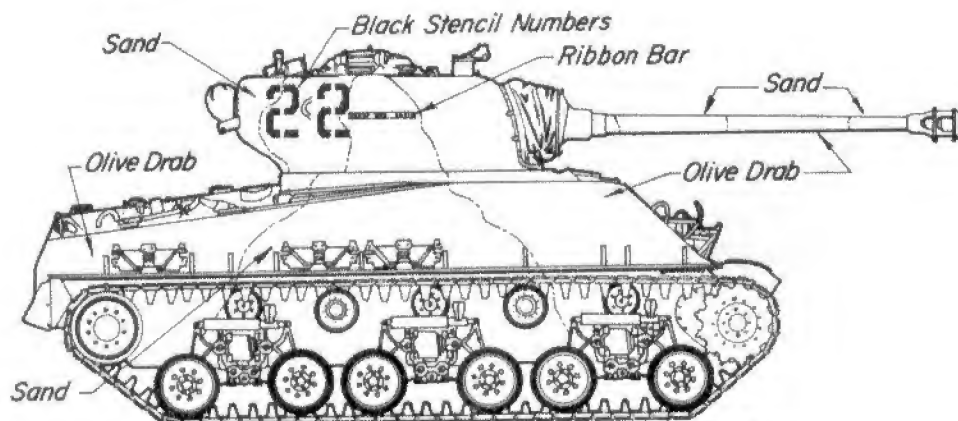




# Color 'n Camouflage

The M-4A3E8 Sherman in Korea

by Lonnie Gill



*Right Side View - "Old 22", Company C, 72nd Tank Battalion*

Old Shermans never die, they just. . . . Such statements are common when discussing what has been considered as one of the greatest AFV's of all.

Great not because of any outstanding characteristic; but rather through sheer dogged persistence. Though introduced in 1942, the Sherman has been in almost every war to date, and although outdated, it is still a threat in the hands of the Israeli's. Shermans were also active in one of

the oft forgotten parts of recent history; the Korean War.

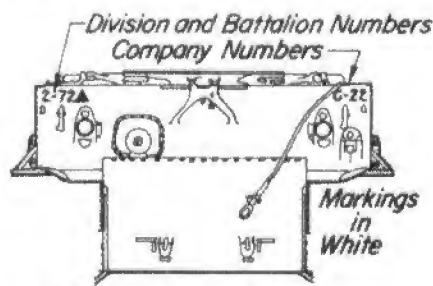
Soon after the war started in 1950, it was discovered that the light M-24's then in Korea could not stop the T-34's spearheading the North Korean People's Army invasion of the Republic of Korea. Shermans were quickly rushed to Pusan, and while more modern tanks, such as the M-26 and M-46, were also used, the M-4A3E8 provided most of the armored support. The "E8" proved equal once again to all that was asked of it, including fighting Soviet-built T-34's.

"Old 22", as our subject was known, was part of C Company, 72nd Tank Battalion, assigned to the Second Infantry Division. It was photographed in June 1951 during the unit's first real rest. It was one of the few original tanks left to C Company of those that landed in August 1950. When photographed, "Old 22" was commanded by Sergeant First Class Charles R. Brown.

Our Sherman was a typical M-4A3E8 of the time. It had wet stowage, the 76mm gun with muzzle brake and HVSS suspension. In addition, it had the early two-piece loader's hatch, similar to that in the Tamiya kit (so no modifications would be necessary to model "Old 22"). While the smaller one-piece loader's hatch was used on most of the "E8's", several photos have been found showing the split hatch versions in Korea.

Stowage was also typical of the times. Spare track shoes were mounted along the hull sides as shown in the side view. Tarps and bedrolls were stowed on the rear hull plate and on the top of the rear deck. A dust cover was mounted around the gun mantlet in the usual manner.

In 1951, Shermans were, as always, painted Olive Drab; but the tanks of the 72nd Tank Battalion were also overpainted with bands of Light Earth, as shown in the side view. This camouflage was to aid in blending-in with the hills of Central Korea during the hot (100° plus) dry Korean summer. The white stars usually found on US vehicles were missing from "Old 22", probably obscured during the overpainting, as was the "USA" number. These bands of Light Earth had sharp edges, as if painted with a brush, and the Olive Drab was badly worn in spots.



*Hull Front - M-4A3E8*

The individual tank number "22" was prominently displayed on the turret sides, near the rear, in 21-inch high stenciled numbers; see the side view for style and exact placement.

The Unit Markings were painted in white 3-inch high symbols, high in the upper left and right corners of the glacis plate, as shown. Apparently, this location was to prevent them from being obscured by mud, as often happened when they were painted on the transmission cover. The symbols on the left (as

you face the glacis plate) represent the 2nd Division, 72nd Tank Battalion. Those on the right indicate C Company, Vehicle #22. If the vehicle had belonged to a Regimental Tank Company (organic

to the 1950-type Infantry Regiment), then the "C" would have been replaced by "Tk", while the numbers following the division symbol would reflect the Infantry Regiment. These unit markings on our vehicle were duplicated on the lower part of the overhanging rear hull plate, just above the engine access doors.

"Old 22's" long service as one of the original tanks of "C" Company was recorded by a row of flag-like ribbons 2-1/2 inches by 35-inches long. This row was painted on the right side of the turret, just forward of the number "22". From left to right, these represent the powder-blue and white United Nations Korean Service Ribbon, the 2nd (Indianhead) Infantry Division insignia, the red and white flag of the Turkish Brigade, a dark blue flag with a white rooster (which we hope one of our readers can identify), the orange flag of the Dutch Battalion, the flag of the Republic of Korea, and the French flag. Units from all of these nations were supported by the 72nd Tank Battalion at some time during the Korean Campaign.

Most of the time, the 72nd Tank Battalion was a part of the 2nd Infantry Division, which also had two Regimental Tank Companies (the 9th and 38th) organic to the division. From the time the battalion unloaded from the SS Rutger and SS Joplin in Pusan Harbor in August 1950, the tankers were almost continually in combat. By the end of 1951, the tankers had earned one Medal of Honor, three DSC's and two Distinguished Unit Citations.

The 72nd, equipped as were most of the Korean War tank battalions with both M-4's and M-26's, entered combat by supporting the 2nd Division along the Nakdong River, as the U.N. 8th Army sought to defend the Pusan perimeter during August 1950. When the U.N. forces took the offensive in September, C Company supported the 23rd Regimental Combat Team (RCT) in the drive northward. The armor-heavy US infantry overran group after group of North Koreans unable to cope with the mobility of the U.N. forces. Although primarily an infantry operation, the drive involved more than 500 tanks, which proved their worth again and again.

October brought C Company a place in history, when six of its tanks were part of Task Force Indianhead, the first U.N. force to enter the North Korean capital of Pyongyang. The small task force, commanded by Lt. Col. Foster, of the 2nd Infantry Division, met no resistance as it rolled through the deserted streets of the enemy capital.

Foster's men were soon in control of two radio stations and the government buildings, where many important documents were captured for study by U.N. intelligence.

In November, the Chinese attacked the U.N. forces and changed the whole character of the war. The 72nd Tank Battalion played a vital part as the U.N. troops retreated through ambush after Chinese ambush in the steep hills of North Korea, so well related in S. L. A. Marshall's famous book "The River and the Gauntlet". During December and January, the 72nd supported nearly every major unit of the U.N. 8th Army in Korea.

In February and March 1951, as the equilibrium of power shifted away from the Chinese, the tankers participated in Operations "Killer" and "Ripper", some of the bitterest fighting of the war. May saw the Chinese spring offensive smashed by the massed firepower of the U.N. artillery and armor. The

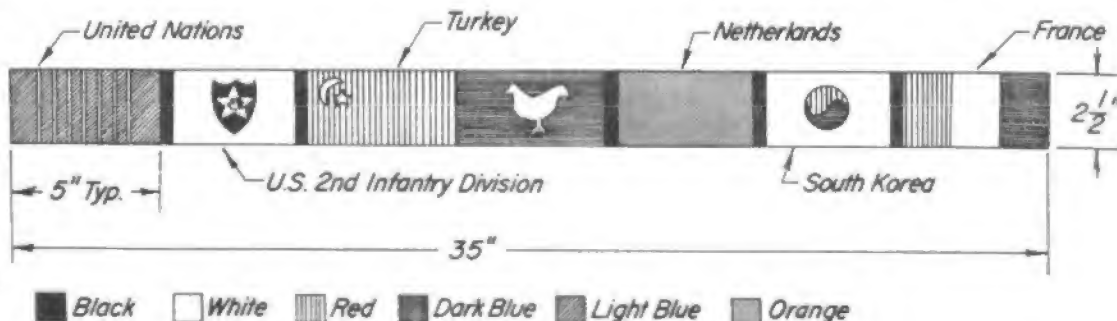
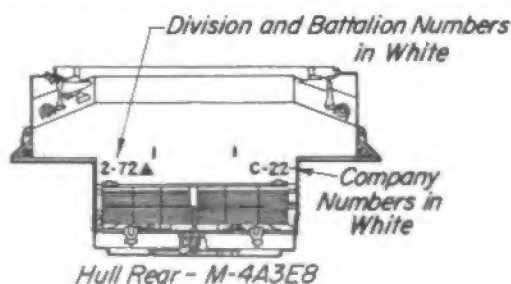
Chinese learned that manpower could not substitute for modern weapons of war.

When "Old 22" and the 72nd stood down for a rest in June 1951, many terrible battles were

still ahead, but both sides had given up the idea of a total victory. In spite of the steep hills and the broken terrain of Korea, M-4A3E8 Sherman tanks had proven again the value of armor in war.

# OLIVE DRAB

10 pts Floquil M39 Olive Drab  
10 pts Floquil RR45 Pullman Green  
1 pt Floquil RR10 Engine Black



Ribbon Bar - Right Side of Turret

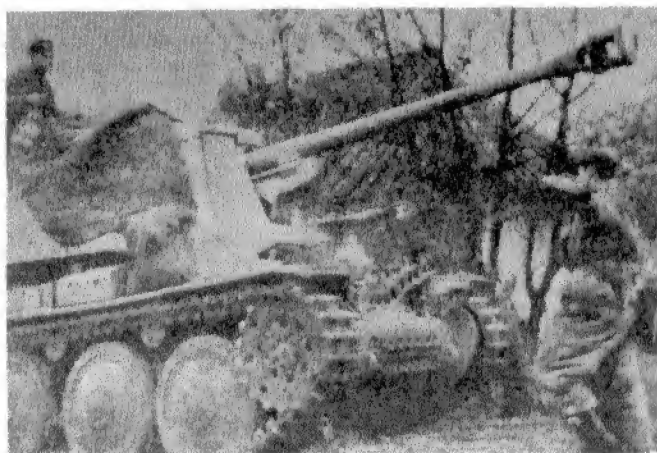


# "Photo Epilog" -

The Marder III. in Russia, 1943-44



Our photos this month show the 7.5cm Pak 40 antitank gun mounted on the Czech Pz.38(t) chassis, which was covered in Vol. III, No. 2. These 3 photographs show a company of these self-propelled guns going into a defensive position in Russia during the winter of 1943-44. The vehicles are shown deploying from their march column into positions astride a road, at the direction of their commander. In the left lower picture, a Gun Commander is receiving his sector of fire from the Company Commander; both men are wearing the typical German camouflage suits. The Marder III. was used far into 1944, even though better equipment was available. Photographs from the Deeter-Steward collection.





Infantry Versus Soviet Tanks  
by Kurt Fischer

During World War II, German operations on the Russian Front were sharply curtailed due to the unexpected appearance of the T-34 tank, and the increasingly large numbers of these tanks that were employed. As the war progressed, it became necessary to develop new and better weapon systems to counter these enemy vehicles (such as the 7.5cm Pak 40 and the Sturmgeschütz III, assault gun). In addition to these new weapons, new techniques were developed to train the German infantry for close-combat against Soviet tanks. These new techniques were especially needed as German anti-tank guns and vehicles were spread thinly in the large spaces of Russia, and Soviet armor attacked with little regard for the locations of these few weapons. A special training program was set-up to provide the fundamentals of infantry-versus-tank combat, and this course became absolutely essential as the war entered its fifth and sixth year.

The first step of the Wehrmacht training program was to orient the infantryman as to the weaknesses of Soviet tanks, and to attempt to conquer his quite natural fear of enemy armor. In fact, one of the biggest factors contributing to Soviet armor success was the fear and hopeless feeling that a defender felt when approached by speeding enemy tanks. (I know this from personal experience) Even after anti-tank training, it took considerable nerve to continue to do one's job in the face of approaching enemy armor. This natural fear could be conquered though, as testified to by the numbers of Soviet T-34 tanks knocked-out by skillfull individual infantrymen.

All tanks provide very limited visibility for the crew, especially when the crew is operating with closed hatches, or "buttoned-up". This limited visibility is further hindered by the vibration of the tank while it is moving. The T-34 was probably more "blind" than any other tank of World War II, in this respect. Soviet optical sights and periscopes were very poor in quality, and the crew had great difficulty in using these optics effectively when the tank was moving. It was quite easy for an infantryman to lie-in-wait, unobserved and undetected, while a T-34 approached his position.

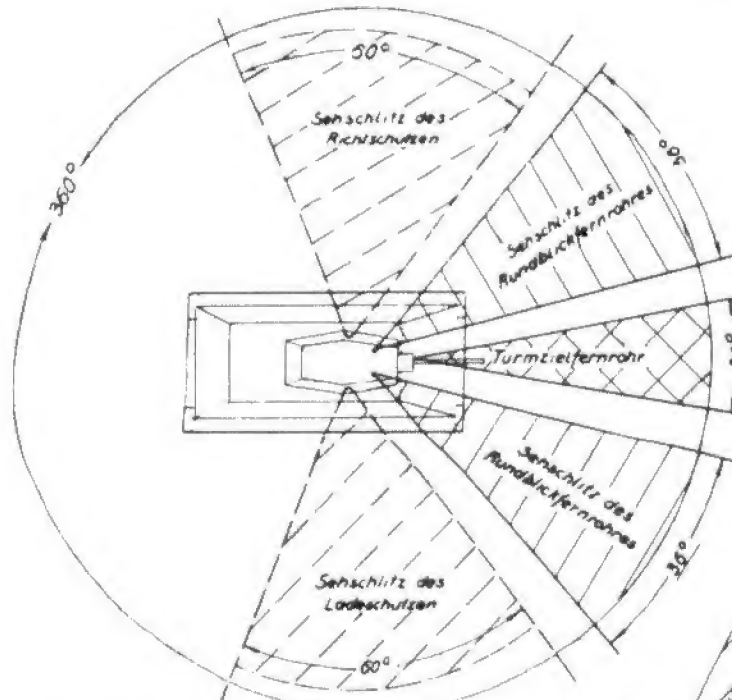
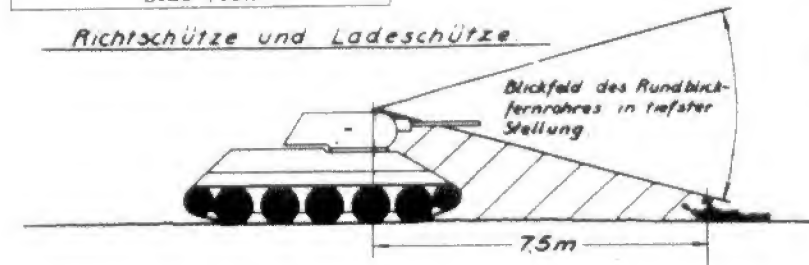
Another defensive problem for all tanks is that they possess a "dead zone" close to the vehicle where nothing can be seen by the crew. This "dead zone" surrounds the tank, but is worse at the rear of the vehicle, and when the infantryman stays close to the ground while in this area, there is nothing that the tank's crew can do to observe him. Once the infantryman has reached this "dead zone", he can do almost anything to the enemy vehicle, from placing explosive charges on the turret to placing mud over the few optical device openings, thus further blinding the tanks. Of course, we are assuming that the enemy tank is not covered by fire from other tanks. In this regard, the Soviet T-34 was especially vulnerable. Somehow, Soviet tank crewmen never seemed to learn the lesson of how to help each other with covering machine gun fire, and the T-34's were usually easy to isolate from each other, and then individually destroy.

Once the infantryman had penetrated inside of the "dead zone", he had a large choice of weapons and tactics to use in destroying the enemy vehicle. Sometimes, optical devices were coated with mud, or covered with helmets so as to further hinder the visibility of the crew. One of the favorite weapons of the "tank hunter" was the standard Teller-Mine, which was fitted with fifteen second delay fuses in the side-fuse well. The infantryman could easily carry these explosive mines by the carrying handle, and he could easily place a mine under the lip of the turret at the rear. After placing the mine, he pulled the ignitor of the fuse and took cover quickly. The resulting blast could be counted-on to remove the enemy turret. Another method was to use a special sticky mine which was provided with a shaped-charge. The infantryman approached the vehicle and positioned this mine where it could do the most damage; for example, just below the turret ring on the hull. Once the mine was positioned, it stuck to the enemy tank hull, and it could be detonated using the same fifteen second delay fuse. Of course, different tactics were required if we wanted to capture a prisoner for the limited information that he possessed. In these cases, we "smoked" the crew out with glass smoke grenades. Since the smoke was irritating to the lungs and heavier-than-air, we usually threw them on top of the turret, close to the ventilators. The smoke filled the turret and the crew could be rounded-up as they evacuated the tank, blind from the smoke.

The chart on the following two pages was provided to the students of this special course, and it was also provided to units operating on the Russian Front. It is one of a series of charts on Soviet tanks, and it schematically shows the limited visibility of each member of the tank crew, and also the extent of the "dead zone" surrounding the T-34 medium tank. While the chart is, of course, in German, I have added translation notes to help the reader understand what he is looking at.

Panzer-Erkennungsdienst  
**Lehrtafel Nr. 5**

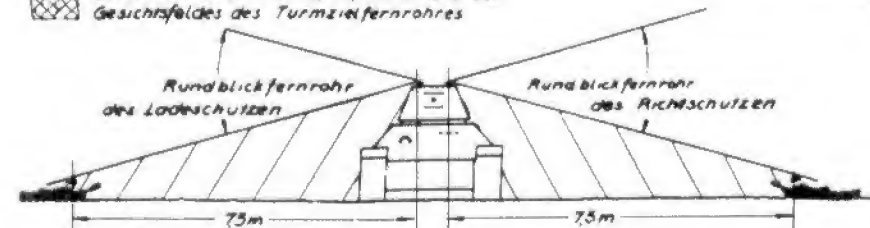
Gunner's and Loader's Vision  
 Side View



Richtschütze

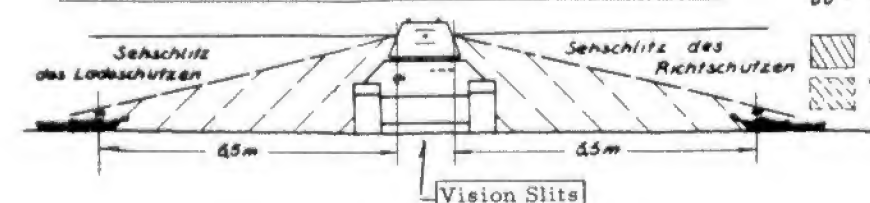
20° = Blickfeld des Turmzielfernrohres  
 360° = Schwenkbereich des Turmes mit TZF

■ Blickfelder Raum (bis 65m) innerhalb des Gesichtsfeldes des Turmzielfernrohres



Richtschütze und Ladeschütze

Gunner's and Loader's Vision - Turret Periscopes

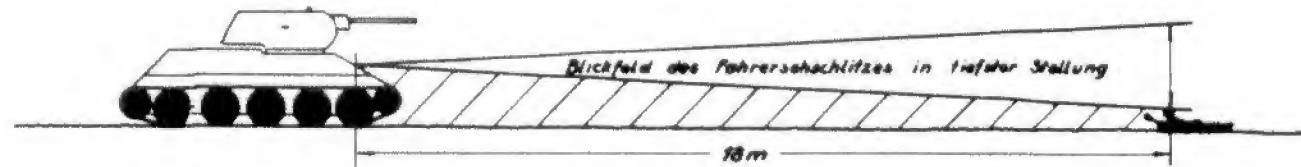


- 360° = Blickfeld der Rundblickfernrohre des Richt- und Ladeschützen.
- 360° = Schwenkbereich der Rundblickfernrohre.
- 60° = seitliches Blickfeld der Sehschlitze rechts und links im Turm.
- Blickfelder Raum (bis 7.5m) innerhalb des Gesichtsfeldes des Rundblickfernrohres
- Blickfelder Raum (bis 65m) innerhalb des Gesichtsfeldes der Sehschlitze

**RUSSLAND**  
 m. Pz. Kpfw. 26 t

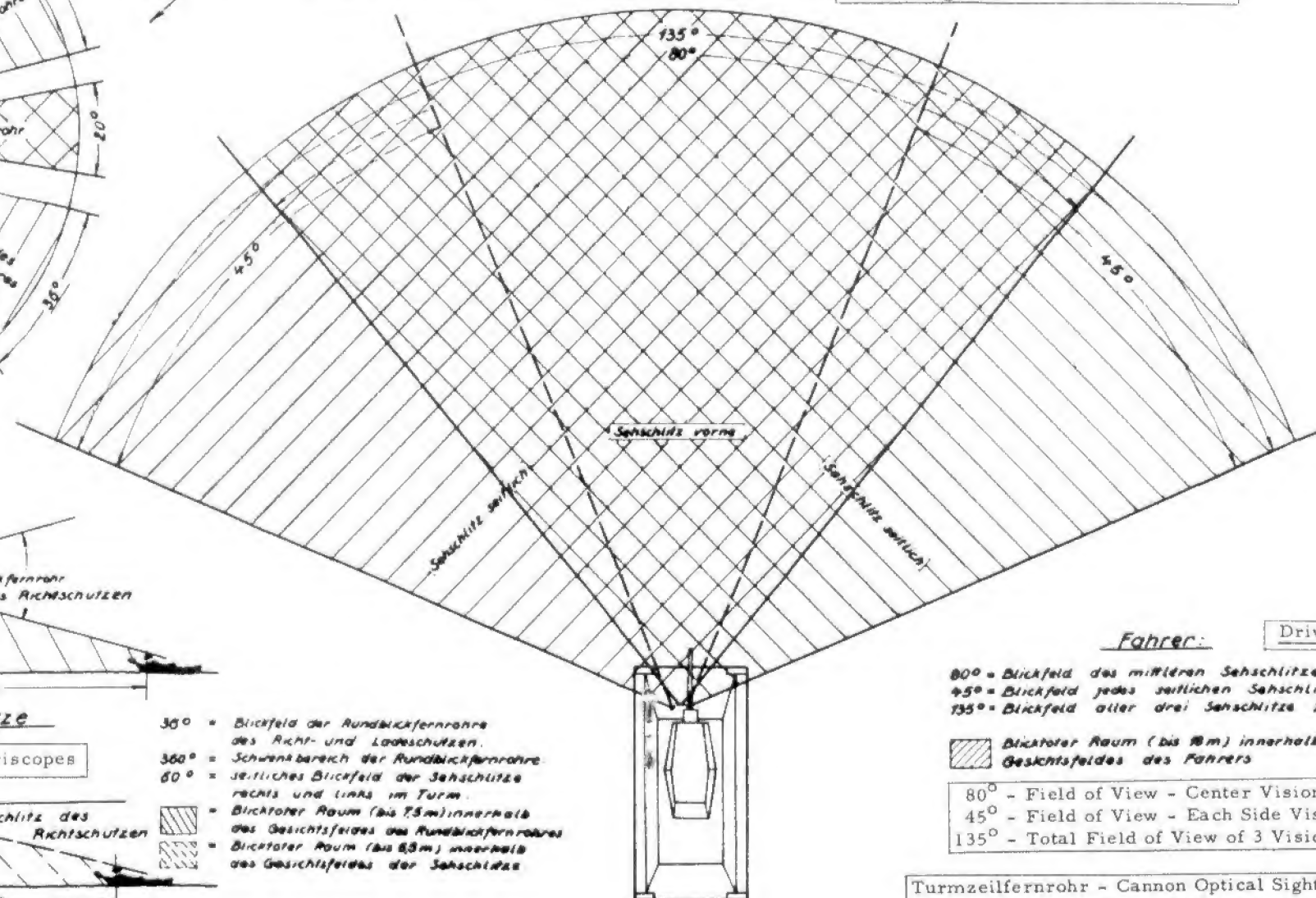
**T34, Blickfelder**

Fahrer



Top View - Turret Vision Devices

Driver's Vision to Front - Side View  
 Shading indicates "dead zone"



Fahrer

Driver

- 80° = Blickfeld des mittleren Sehschlitzes
- 45° = Blickfeld jedes seitlichen Sehschlitzes
- 135° = Blickfeld aller drei Sehschlitze zusammen

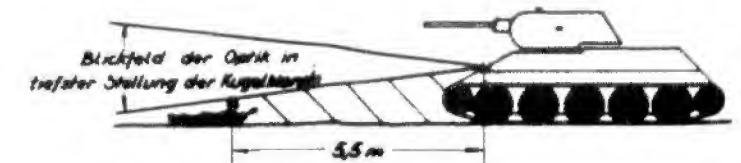
■ Blickfelder Raum (bis 18m) innerhalb des Gesichtsfeldes des Fahrers

- 80° - Field of View - Center Vision Slit
- 45° - Field of View - Each Side Vision Slit
- 135° - Total Field of View of 3 Vision Slits

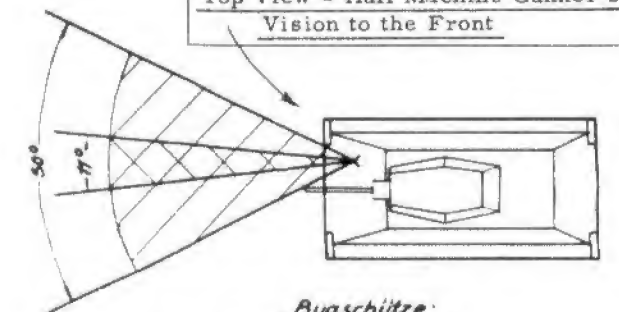
Turmzielfernrohr - Cannon Optical Sight  
 Rundblickfernrohr - Turret Periscopes  
 Sehschlitz - Vision Slits (Pistol ports)

Hull Machine Gunner's Vision to Front  
 Shading indicates "dead zone"

Bugschütze



Top View - Hull Machine Gunner's Vision to the Front



Bugschütze

- 11° = Blickfeld der Optik
- 50° = Schwenkbereich der Optik

■ Blickfelder Raum (bis 5.5m) innerhalb des Gesichtsfeldes des Bugschützen

- 11° - Field of view - Optics
- 50° - Traverse of Optical Sight

Erklärung der Tafel:

Die Beobachtungsmittel (Fernrohre und Sehschlitze) im Pz-Kpfw. T34 lassen auch in tiefer Stellung unterhalb des untersten Sehstrahles einen "Blickfreien" Raum frei, innerhalb dessen sich herannahender Nahbekämpfer von der Besatzung nicht beobachten werden kann.

Der "Blickfreie" Raum ist abhängig von der Bodengestraltung und Entfernung.

In dieser Lehrtafel ist als Beispiel ein kriechender Schütze von 0.8m Höhe gewählt.

Maßstab: 1:80

A35223

Note: Scale of these drawings has been altered for convenience of size.

# Salerno - D-Day Plus... the U.S. VI. Corps

by John Yonos



*Shoulder Sleeve Insignia -  
U.S. VI. Corps - "a white  
number six on a blue  
circular background"*

General Mark Clark, the Commanding General of the Fifth U.S. Army, received a radio message that the First and Second Battalions of the 504th Parachute Infantry Regiment would be ready to jump into the VI. Corps defense sector of Salerno by midnight of 13/14 September 1943. By this time, Fifth Army needed any and all reinforcements that it could muster to retain its tenuous beachhead at Salerno. General Ridgeway, the commander of the 504th asked that allied anti-aircraft fire be stopped five minutes before midnight and that it be withheld until after the last C-47 transport had left the area. Too many friendly paratroopers were killed in Sicily by friendly anti-aircraft fire. At five minutes before midnight, all of the fire ceased, as planned. Five minutes later, aircraft engines were heard overhead. The German Luftwaffe came in at exactly the right time, and for five minutes they bombed and strafed the beaches, while the allied troops held their fire. Then the C-47 Dakotas came over the beachhead and six hundred men jumped out, landing "dead-on" the drop zone. This night reinforcement boosted the morale of the infantrymen who had been fighting for the beachhead.

On the 14th, General Mark Clark made a personal inspection of the front lines of the VI. Corps. What he saw was not encouraging. Rumors of gas and massive enemy breakthroughs flittered around like so much confetti. Captain Warren Trasher, General Clark's aide, climbed a small hill to take a look at "no man's land". He observed some eighteen tanks roaming around out there. Although he considered them to be American Shermans, he checked them by use of his binoculars. They were Panzer IV. 's! Seeing no American infantry at hand, let alone anti-tank guns or tanks, he raced down the slope to the jeep and grabbed the radio microphone. He immediately ordered an anti-tank unit to the area, and with the aid of naval gunfire, the Panzers were thrown back. Had not Captain Trasher climbed that hill at that particular time, the VI. Corps beachhead might well have dissolved. Fighting continued to be heavy all along the defense lines on the 14th. Company A of the 751st Tank Battalion attacked a company of Panzer IV. 's and the Germans lost eight tanks at the cost of one Sherman. Grouped enemy infantry and tanks attacked the First Battalion of the 141st Infantry as it was taking up new positions. Things were very much up in the air until naval gunfire broke up the enemy attack.

Sergeant Edwin Yost of the 636th Tank Destroyer Battalion, commanding a tank destroyer named "Jinx", maneuvered his vehicle to the top of a small hill. Below him in massed formation was close to a company of enemy Panzer IV. 's. "Jinx" knocked-out a tank and an ammunition carrier before an 88mm gun started landing shells a bit close - one landed within two feet of the vehicle. Sergeant Yost redeployed his vehicle to another position on the ridge. After destroying three more enemy tanks, he was again forced to move by the 88mm fire. In a third position, "Jinx's" crew put another two tanks out of commission. The remaining tanks withdrew as did "Jinx", as the "88" continued to probe for the tank destroyer without luck.

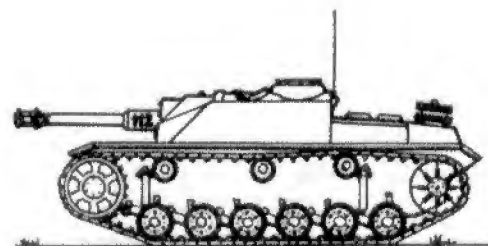
During the night of 14/15 September, the 509th Parachute Infantry Regiment was para-dropped behind enemy lines to disrupt enemy communications. The drop zone was to have been near Avellino, about twenty miles from the allied perimeter, but the usual SNAFU developed with the C-47 transports. The paratroopers landed anywhere up to twenty-five miles from their drop zone. Naturally, the additional distance was all away from the allied lines. Many paratroopers were killed as they floated down. Amazingly, nearly 80% of the paratroopers reached friendly lines, but the mission was a dismal failure.

The 15th saw the Germans switch over to the defensive. The British Eighth Army was within 50 miles of the Salerno plain, and in fact, a group of correspondents attached to the Eighth Army actually entered the American lines at Salerno. These reporters had become fed-up with the slow progress of the British forces; the seven correspondents and their Public Relations Officer, Capt. John Soboleff, reasoned that the retreating enemy would withdraw via the inland roads to avoid the



Salerno Plain. Setting off in two jeeps early on the 14th, they soon left British reconnaissance units far behind. They stopped on the first night outside of Castelnuovo. The chief of the local Carabinieri (the Italian police) of that town warned them that the next town north was still occupied by German armored cars. The next morning, they were able to avoid German demolitions to the roads, by asking local residents. When they were approximately 15 miles from the Salerno Plain, they found discarded American "K" ration boxes and empty cans. Later, an Italian showed them a wide-open road to the north. As they rounded a curve, they were nearly fired on by an American halftrack from the forward units at Salerno. It was estimated that the correspondents had covered 120 miles of "enemy occupied" territory.

The German Commander-in-Chief of the Southern Front, Field Marshal Albert Kesselring, ordered his troops to withdraw in a wide pivot, so that the German forces in the southern-most areas would withdraw first. This retreat was successfully accomplished by small attacks throughout the VI. Corps area during the day, then German artillery pounded the American positions through the night. During the night, the German forces which had been delaying the British Eighth Army retreated through friendly lines. The Fifth U.S. Army had indications on the next day that the Germans were withdrawing, as only light contacts had been made with enemy units, and General Clark decided to keep pressure on the German forces in the area, so that they could not withdraw and be used against the allies on a future date. Therefore, he ordered another attack on Altavilla, the strategic hill-top town that the Germans wanted to retain. The First and Second Battalions of the 504th Parachute Infantry were ordered to make a night attack on the two hills on either side of Altavilla. The German artillery had fired so heavily on the Altavilla vicinity in the past that they were able to fire a barrage almost on top of the entire American force. The First Battalion pushed a small German force off Mount del Bosco, and occupied the German positions, but they then had to spend the day and night of the 17th in their foxholes with German shells landing all around. Hills 424 and 315 remained in German hands. By late afternoon of the 18th, the Germans withdrew from Altavilla, and tanks of the 191st Tank Battalion and the paratroops occupied the town. On that same date, units of the 45th Infantry Division occupied the "Factory" without incident, and Persano was also taken. The German retreat was covered by skillful demolitions and small motorized infantry units, while self-propelled artillery pieces harassed the allied advance. One 88mm gun was placed on a bare knob along Highway 91. From this position, it could cover the entire valley floor. It was not even camouflaged but the haze in the mountains and a flashhider on the gun prevented it from being spotted unless the observer was in direct line with the barrel. This gun caused a great deal of trouble and delay. German strongpoints were usually taken within a day, until the Americans came to a canyon north of Acerno. Here, the Germans had not only blown the bridge, but they had also knocked-down the side of a cliff, so that 100 feet of road had ceased to exist. A new road was built by the Engineers within two days. The entire Salerno Plain was now in Fifth Army hands, but the great majority of enemy forces had escaped to fight again. The next phase of combat was to take place along the Volturno River.



*Sturmhaubitze 42 of 26. Panzer-Division*

On September 30th, the British 10 Corps swooped down on the port city of Naples, which the Germans had completely demolished before they evacuated. Ships were scuttled at the piers and numerous obstacles had been sunk in strategic points of the harbor to prevent their use by the allies and all of the harbor installations and buildings were completely destroyed. The Germans had correctly evaluated the allied plans for the city and had taken steps to hinder the use of the port. The 82nd Airborne Division was ordered to garrison Naples on October 2nd, while the rest of the Fifth Army moved north to maintain contact with the retreating forces.

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Classified Ad: Wanted Urgently! A copy of B. H. Liddell-Hart's "The Tanks", Volumes 1 and 2 (together or separately). Will pay any reasonable price. Write to: Bill Platz, c/o AFV-G2 Magazine, P.O. Box 293, La Puente, CA 91747.

Editorial Note: For those of you who enjoy modeling in 1:76th scale, there's a magazine on armor that offers plans and articles on modeling in this scale. It's: Tankette, the publication of the Miniature Armoured Fighting Vehicle Association. It is published bi-monthly and contains 16 pages of good articles and photographs on glossy paper. It costs \$4.25 per year, and subscriptions can be obtained from G. E. G. Williams, 15 Berwick Ave., Heaton Mersey, Stockport, Cheshire, SK4 3AA England.

# British 'AA' Tanks

by William E. Platz

Stuka! The gull wings spread wide, the fixed landing gear extended like grasping talons, screeching like a vengeful eagle...no other weapon had so great a morale effect while doing so little physical damage. The Stuka's greatest weapon was fear - fear enhanced by the inability of the prey to strike back. As they stumbled ashore from the barges and yachts that had plucked them from the beaches of Dunkirk, British officers vowed that the situation would be remedied.

On a hillside in Greece, Lieut. Bob Crisp of "C" Squadron, 3rd RTR, fired his .38 caliber Revolver at a darting Messerschmidt, and felt the same feeling of helplessness. On the long retreat down the Greek peninsula, however, the first Cruiser AA tank was born, when Crisp, in an ancient A-10, parked his tank on a 30-degree slope and laid an ambush for the passing Heinkels. With the slope of the hill, the 2-pounder gun was able to get enough elevation, and when the next German aircraft flew over, it was greeted by two quick shots from the tank's main gun...one of them actually hitting the plane, but with no visible effect.

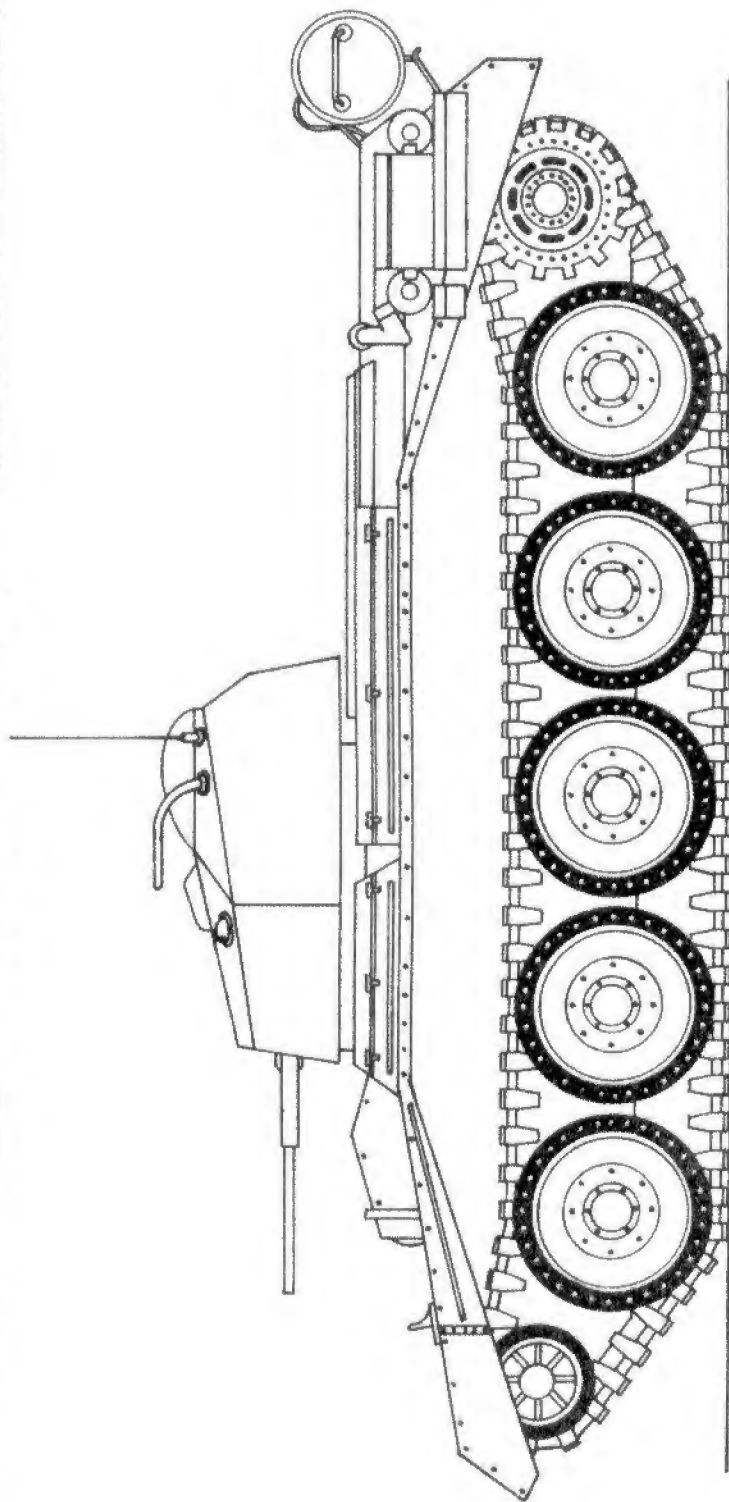
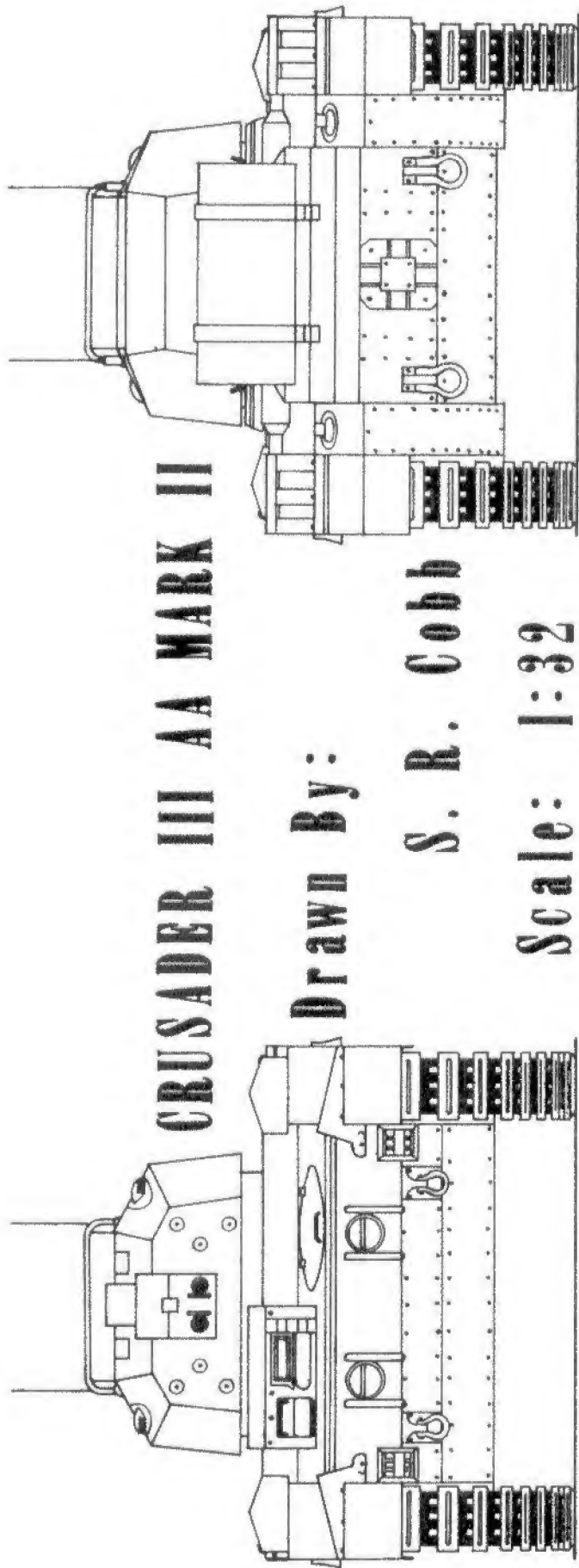
Meanwhile, back in England, things were taking a more practical course. After Dunkirk, all British armoured vehicles were provided with a Bren Light Machine Gun for AA defense; however, this was only the beginning. As it became obvious that the Mark VI. Light Tank was obsolete, numbers of these vehicles were removed from active service and converted to the "AA" role. The conversion generally took the form of replacing the old turret with a new one mounting four Besa 7.92mm machine guns. These vehicles entered service between May and August of 1942 and saw action in North Africa.

Originally, 8 of the AA tanks were to be assigned to each tank regiment (War Establishment II/151/2 wef 26 August 1942) and an additional 2 to the Divisional Headquarters. However, the British Forces in the Middle Eastern Theatre modified this to include only a single AA Troop of 4 vehicles at the Regimental Headquarters, probably because of a shortage of vehicles.

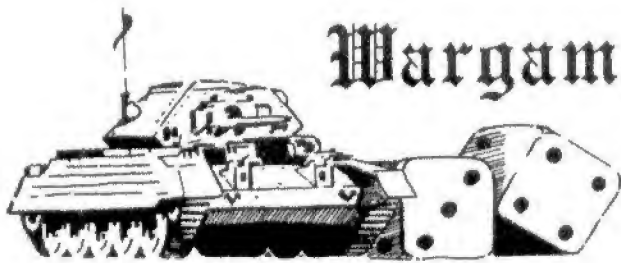
But the Mark VI. Light Tank conversion was not the final answer - although a later modification provided for better gun sights and increased ammunition stowage. By 1943, the "Crusader" series of Cruiser tanks was being phased-out of the combat role, and a new source of chassis became available. With the larger capacity of the Crusaders, larger weapons could be mounted, and the British were quick to seize the opportunity. Experiments were made with the excellent 40mm Bofors AA gun and with a triple 20mm Oerlikon mount. Originally, the 40mm field mount simply replaced the turret on the Crusader III. tank. This became the Crusader III.AA, Mark I.; and later modifications included a lightly armoured turret, surrounding the gun. The triple 20mm version was never mass-produced; however, a new mark, with a fully enclosed turret, soon appeared. The Crusader III.AA, Mark II., as this variant was called, carried a twin 20mm mount, similar to the weapons used for anti-aircraft defense on naval vessels. (This Mark II. is shown in the drawings opposite.) An additional modification to the new turret resulted in a third Mark of the Crusader III AA; however the changes were primarily internal, and principally involved moving the radio from the turret to the hull.

In 1944, the Crusader AA tanks gradually replaced the Mark VI. Lights in service. They were assigned to all armoured formations, including the Infantry Tank Brigades, and saw service in the Normandy landings. The actual number of AA tanks in each regiment had been reduced in March of 1944, from 8 to 6 vehicles (five in the Armoured Reconnaissance Regiments equipped with Cromwell cruisers and Light tanks), and there were 25 AA tanks attached to each of the three British Armoured Divisions in Normandy (the 7th, 11th and Guards Armoured Divisions), plus 20 more with each Independent Armoured Brigade or Tank Brigade.

Shortly after the Normandy landings, the AA tanks disappeared from the armoured units in Northern Europe. However, they were never officially dropped from the units' War Establishments and the May 1945 organizations still called for 2 AA tanks at Brigade Headquarters, and 6 AA tanks in the AA Troop of the Headquarters Squadron of each Armoured Regiment. If the AA tanks did not see further combat, it was not due to their own failure; but rather to a lack of targets for them... and an urgent need for their trained personnel elsewhere.





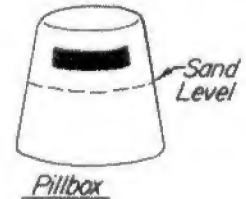


# Wargame Review

Sand Table Fortifications - Part II.  
by Gary Gyax

Last month we gave a list of materials to use in building fortifications for your sand table. We also told you how to build log bunkers. This month we shall tell you how to build pill boxes, concrete block houses, and coastal gun emplacements.

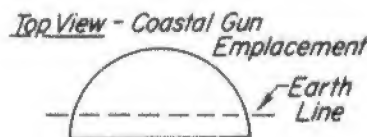
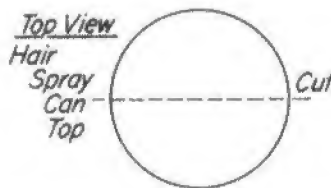
**Pill Boxes:** Clip off the small projection on the bottom of the whipping cream can (aerosol) lid, so that it won't get in the way. Now cut a slit in it about 1/4" from the top, carrying it about one-third of the way around. The rear door can be either cut out or painted on. When all cutting is finished, paint as concrete or camouflage with paint. For use in a game, set into the sand so only about 1/2" projects above the ground when viewed from the front. At the rear, scoop out a trench leading to the entrance.



An octagonal pill box can be scratch built from commercial plastic sheet, or from the plastic obtained from cottage cheese container lids. If you use the latter material, be sure to reinforce the areas where the sides and roof join.

**Concrete Block Houses:** Various sizes of block houses can be made from the plastic taken from Mini-Tank packages. When opening the package, carefully remove the staples, trim the edges of the plastic if they are too wide. When you have as many as you plan to use, cut (very carefully as the plastic is thin) slits and entrances, and then spray paint them inside and out with flat black. Thereafter, you can paint them as concrete, camouflage, or whatever you wish. Because the plastic is not rigid, it is advisable to mount them on balsa wood or hard plastic bases. Rear entrances should actually be cut, because once the block house is mounted on the base, troops and equipment must be slipped in through such openings.

**Coastal Gun Emplacements:** Use the large tops from hair spray cans for coastal gun emplacements. Treat in much the same way as the pill box, but cut the firing slit in the middle of the lid. Paint them as concrete, and then camouflage with "nets" made from old nylon stockings and with bits of lichen. If you wish to really do it up right, use these constructions only for gun embrasures set into sheer cliffsides and the like, showing only the front third or so of the emplacement. For those not so set, cut the top as illustrated below:



Both halves are useable for gun emplacements. The artillery pieces should be mounted in these constructions. Models of US "Long Toms", German 10cm guns, and similar large pieces work well. If shields or mantlets are desired, either scratch build them or use the shield that comes with the half-track mounted German 2cm flak gun.

The rules our group uses contains statistics for the various kinds of fortifications, so that computing the difficulty in hitting them with direct fire, indirect fire, or aircraft, and the damage done by such hits, poses no problem. However, for those readers who do not have such information, be certain to establish some rules before employing the fortifications in a game. As a guide, a small bunker is very difficult to hit with direct fire, but it has very little protection (reinforced concrete). The larger bunker is easier to hit but is about twice as thick. The pill box is as difficult to hit as a small bunker but has better protection. The larger the fortification the easier it is to hit, but the reinforced concrete would be thicker as the size increases. A good scale for protection would be 1mm equals 1 foot of reinforced concrete.



Book Review: Weapons and Equipment of the Israeli Armed Forces by Raid Ashkar and Ahmed Khalidi (Institute for Palestine Studies, Beirut, Lebanon, 1971)  
Review by Jerry Asher

This first volume released on the equipment of the Israeli Defense Forces is disappointing, and personally not worth the money. The volume is seriously incomplete and is very poor in terms of layout and photography. The declared aim of the authors to "list the equipment possessed by all branches of the Israeli Armed Forces" is not met.

The section devoted to the Army (28 pages) surveys tanks, armored cars, halftracks, artillery, mortars, anti-aircraft artillery and infantry weapons. A 1-1/2 page appendix on captured Russian equipment is included. The section on artillery is the best thing in the entire volume. However, at this point in history, I view the failure to include radio communications equipment as very serious. The omission of trucks, jeeps and bazookas further mars the book. The listing of captured Russian equipment in 1/12 pages bears no relation to Israeli use of these weapons. By November, 1970 (the author's cut-off date), certainly greater attention is due for the T-54 and T-55 tanks and the BTR-152 and BTR-40 personnel carriers. There is simply no excuse for playing down the use by Israel. Lastly, the section on the Army is deficient in not mentioning the equipment of the Israeli "home defense forces" which can be significant among border villages, and the failure to include Soviet infantry weapons is ridiculous.

Book Review: West of Alamein, Edited by Joseph V. Mizrahi  
(Sentry Books, Northridge, Calif., 1971, \$13.95) Review by Bill Platz

The latest in a series of books on the North African Campaign of World War II, West of Alamein is a work to be viewed with mixed emotions. The photographic content is excellent, with many pictures from private collections which have not been previously published. However, many of these are spoiled by inaccurate or misplaced captions. Of particular note are the photos provided to distinguish the Pzkw. III from the Pzkw. IV (page 70). The photos are reversed!!! With the III appearing in the place of the IV. In another instance an attempt was made to include information in the captions which bore no relation to the subject of the photograph, a fault compounded since the information provided was in error. Indeed, the greatest problem with this book is that, while there is a wealth of information available, the numerous errors in the text make it difficult for the average reader to use what is there with any confidence. The primary reason for this is that the book was assembled from material written by a variety of different authors of varying levels of competency. Some sections are quite good, while others are just a collection of the old desert cliché's.

My biggest disappointment, however, was the drawings. Most of these have appeared before in "Scale Modeler" magazine (Many should never have appeared at all!!!). One of the drawings is of a Pzkw. III(n), which never saw service in North Africa and bears the tactical marking of the 14. Panzer Division in Russia. This of course, was captioned as an early model III with the 3.7cm gun. (The bore is the biggest 37mm I've ever seen.) It would seem that if you are going to go to the expense of including color illustrations, you should at least use the proper vehicles.

For the photographs and the several good eye-witness accounts, West of Alamein is a valuable reference work; but, if you are looking for a history of the campaign or detailed accounts...keep on looking.

Until the armor engagement in Laos early in 1971, tank-to-tank battles in Viet Nam had been limited to those infrequent occasions when a Communist PT-76 sneaked out of the swamps, fired a few rounds and disappeared back into the jungle. One engagement does stand out, however. On March 3, 1969, the Special Forces camp at Ben Het was attacked by a combined armor/infantry force that included four PT-76 amphibious tanks and eight armored personnel carriers.

Company B, 1st Battallion, 69th Armor, had the mission of securing Highway 512 and reenforcing Ben Het. Capt. John Stovell deployed his M-48's. The first platoon of 5 tanks was placed on the western face of the hill upon which the Ben Het camp was situated. Then, at 2100 hours on 3 March, fire was received from two recoilless rifles. At 2200, the enemy tanks were sighted. Flares went up and the fighting began. When it was over two PT-76's were burning and the attack was repulsed.

So break out your lichen: this game calls for lots of jungle. Equip the American player with a platoon of M-48's and give him the high ground. Give the Communist player four assorted PT-76's, eight APC's, two recoilless rifles and any other assorted mortars, etc. that a kind hearted American will allow.

The American platoon is simply to defend the high ground on the board. The Communist is to take this ground, or cause extensive damage.

The referee should arrange the playing area with high ground in the center and ample foliage. Highway 512 should run east and west across the board. The American player sets up his defenses first.

The Communist player has two advantages, though. First, he has a surprise factor. He may approach undetected and pop out of the jungle only when detected by an American vehicle within 100 yards. Second, the referee may designate certain streams to be fordable only by light vehicles. After all, those PT-76's are not amphibians for nothin'!

HISTORIAN'S NOTEBOOK: A Guide to Military Research.

"Would You Believe...."

by William E. Platz

One of the most frustrating problems for anyone interested in Military History on Armored Vehicles is the mass of conflicting and contradictory information now available. It is not uncommon to find even the most cut-and-dry data differing from one source to another. (e.g. the maximum speed of the U.S. M-4 Sherman has been given as 22, 24 and 29 m.p.h. in three different publications) When the subject changes to who won a specific battle, or how was the Panzer III superior to the British Crusader, then look out.....

The solution to this is simple.....KNOW YOUR SOURCES!....Generally, there are two types of source material - Primary Sources, and Secondary Sources. The distinction here being who compiled the data, and when it was compiled. Primary Sources include contemporary documents and personal accounts by those actually involved in a specific event. Thus, "The Rommel Papers" and the U.S. Army Technical Manual TM 9-729 of May 1951, Light Tank M-24 are primary source materials. Secondary Sources can be simply defined as all other works. Thus, "AFV-G2" is a secondary source, as are all "official histories" and such publications as "AFV Profiles" and "Bellona Prints".

As a rule of thumb, one primary source is worth two secondary sources. That is, to verify a particular point, you should check it with either a primary source, or at least two secondary sources. Likewise, care should be taken with any written work to insure the expertise of the author. One way to do this is to check his sources, as shown in his acknowledgements or the bibliography. Just because a book is published does not mean that the author is an authority on his subject. You might check on other works by the same author, or whether this particular book is quoted elsewhere as a source. In any case, specific information should always be confirmed through a minimum of two separate sources before you use it. Remember the question "Would you believe....?" should always be answered with a resounding "Only if you can confirm it!"

This is the first in a series of short articles for those interested in a serious study of military history. The series will contain some of the "tricks of the trade" for gathering information. Although the author of various articles will differ from month to month, each segment will be written by a trained historian holding a degree(s) from a nationally accredited university. Your comments would be most welcome, and they will help to determine the subject matter for future articles in the series.



# The Baron's Corner

A Scale Conversion Nomograph

by Norb Meyer

The complicated-looking device on the right is a Scale Conversion Graph. At first glance, it looks too involved for use on models, but it is really quite simple. You can obtain scale measurements in any scale without any calculations what-so-ever. All you have to do is draw a straight line with a pencil and ruler to connect the full size dimension with the scale that you are working in and the result will appear on the center scale dimension rule. It is not necessary to mark the straight line on the graph, you can sight the exact spot by looking along the ruler after it is laid in position.

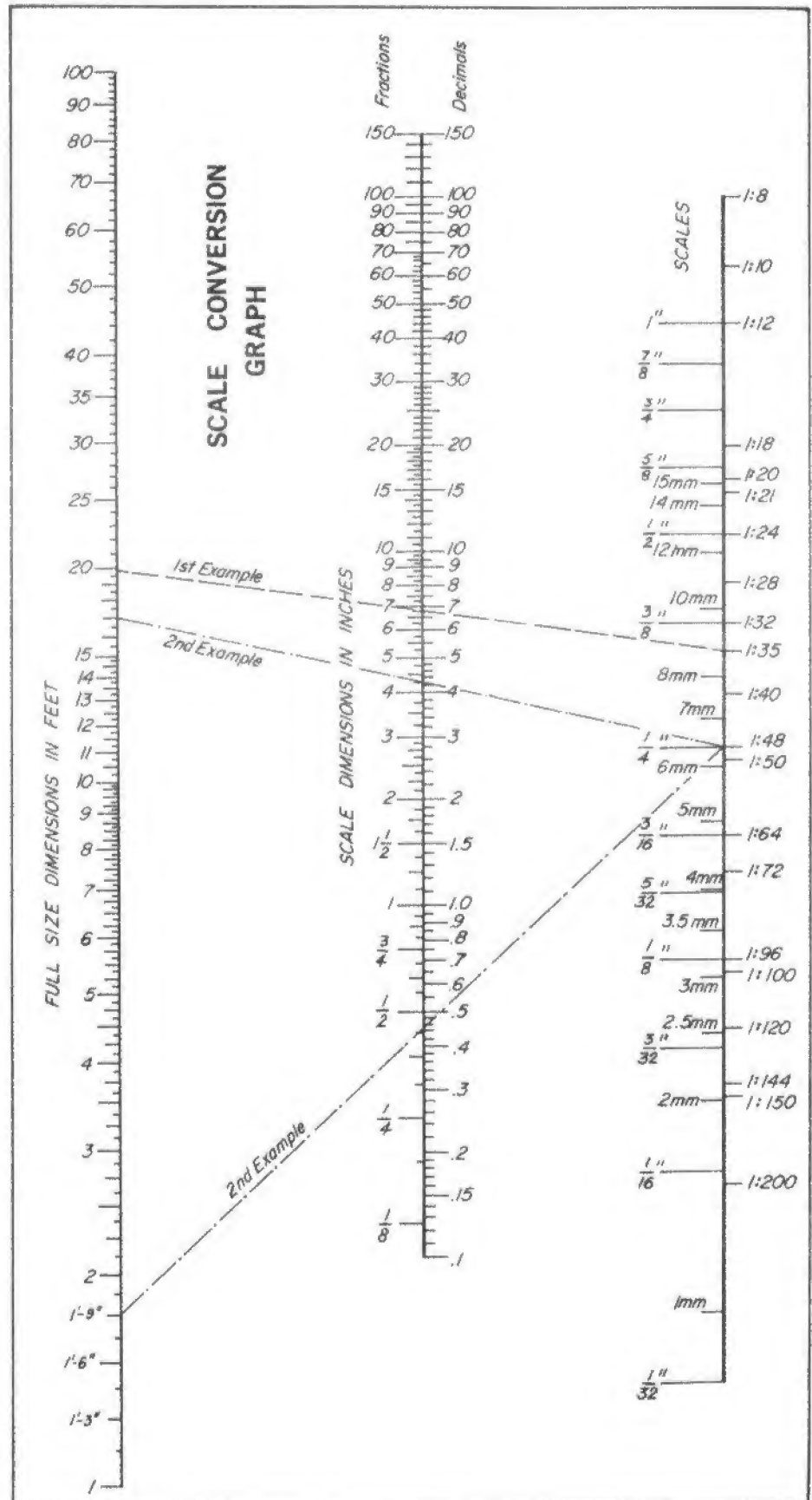
The left hand (or upper) scale is the Full Size Scale. It is graduated in inches and feet. Up to 15 feet, the marks are every 1-1/2 inches or every 3 inches. From 15 to 20 feet, the marks are every 6 inches apart, and from 20 to 40 feet, the marks are every foot. Above 40 feet, the marks are every two feet apart.

The right hand (or lower) scale is the Scale Line. It indicates all of the popular scales that a modeler will ever need. On one side, the line is divided into the "ratio" scales, such as 1:48th, 1:32nd, etc. These scales indicate that 1 inch on the model represents 48 inches on the real vehicle that is being modeled. On the other side of the line are the divisions to indicate the fractional scales, such as 1/8th" scale, or 1/2" scale. This side also gives the millimeter scales. For those of you who immediately look for 1:76th scale.....no we didn't forget you... The actual size of 1:76th scale is 4mm to the foot, so look for the 4mm line.

The center scale is the Scale Dimension Line, and it indicates the size in inches in the scale that you are working in. One side of this Line is divided into fractions of an inch, and the other is divided into decimals of a inch; you can thus use the side that matches your scale ruler. Now for the examples:

**First Example** - You are interested in checking the scale on that new T-34 kit in 1:35th scale that you just purchased. Looking in references, you find that the hull is 19 feet and 11 inches long. What is the size in 1:35th scale? You can see how we laid the straight edge to connect the scale on the right with the actual dimension on the left. The result is 6-3/4 inches.

**Second Example** - We need a very accurate measurement in 1:48th scale, of



(Continued on Page 30)

## British "Matilda" Tank Company, 1938 - 1941

by William E. Platz

Out of the pre-dawn darkness two companies of British infantry tanks bore down on the Italian fortified camp of Nibeiwa. Outside the perimeter some 23 M-11/39's of II Battaglione carri M were overrun and destroyed within a few minutes. Then the "I" tanks were inside the camp. Frantic Italian gunners man-handled their pieces to face the sudden threat. A 75mm field piece fired into one of the advancing Matildas at a range of 30 yards. . . . . without effect! Generale d' Division Maletti, the Italian commander, was cut down as he fired a machine gun at the hulking intruders. In minutes the first British victory of the war had been won.

The "Matilda" had been designed for close co-operation with infantry units - a role which required heavy armour and little speed - the resulting vehicle was ideally suited to this purpose. At the outbreak of World War II, there were plans to provide one battalion of infantry tanks for each Division of the Expeditionary Force sent to France. However, by June of 1940, only three such battalions had been equipped ( 4th, 7th, and 8th Battalions, Royal Tank Regiment); and even those were understrength. Indeed, throughout the first years of the war there would never be enough Matildas, but wherever they did appear - at Arras, at Sidi Barrani, at Bardia and at Tobruk - they dominated the battlefield as no other tank was to do until the arrival of the German "Tigers" in 1943.

With the shortage of infantry tanks it was not unusual to find individual companies and even sections operating independently far from the parent unit. Such a situation demanded a flexible organization and a high level of competency from junior officers. The Royal Tank Regiment had been blessed with both. The basic company and battalion organization for the infantry tank units had been specified in 1938 (War Establishment III 1931/33A/2 wef 13 April 1938). This provided for a Battalion which consisted of three tank companies and a Headquarters. The latter included two Matildas and four Mk. VI Light tanks plus administrative and service troops. The battalion was the primary combat unit since the Brigade was merely an administrative center until 1942.

The tank company (shown in the diagram opposite) was comprised of Fighting and Administrative, or "B" Echelons. The former included all of the company's fighting vehicles - 16 Matildas and a single Mk. VI Light tank; while the latter was made up of the "soft-skinned" contingent, and generally accompanied the Battalion Headquarters. In those instances when the company was acting independently the "B" Echelon might be augmented with additional trucks from the Battalion HQ. The Company was commanded by a Major who exercised control from a small tactical Headquarters consisting of his own Matilda and the light tank. The Mk. VI was commanded by the Company Sergeant-Major (CSM) and provided a rear radio link. (In some units the position of the CSM and the Company Adjutant were reversed with the NCO in charge of the "B" vehicles.) The five tank sections each consisted of three Matildas. These were under a Lieutenant as Section Commander and had two NCO's as tank commanders.

The company "B" Echelon was commanded by the Adjutant, a Captain. In addition to the two cars provided for motor transport there was the company office truck with files and records, a wireless van which maintained contact with the fighting element (both of these were the basic 15 cwt truck with a modified rear body), a fully tracked carrier with the company mechanics, and 6 motorcycles. Actually, the motorcycles provided communication between the echelons whenever poor atmospheric conditions or eavesdropping Germans made radio discussions inadvisable.

This organization was used throughout 1940 in France and in North Africa. However, in April of 1941, the structure of the Infantry Tank units was altered. The terms "Company" and "Section" were discarded in favor of "Squadron" and "Troop" and the company organization was modified slightly. To the "Squadron" Headquarters were added 2 Matilda III Close Support tanks armed with 3-inch howitzers instead of the standard 2 pounder gun. The light tank was deleted from the Squadron Headquarters being replaced by one of the close support tanks. Otherwise the reorganization had little effect on the Squadron.

In operation the Matilda Tank company was attached to an Infantry Brigade (later a Battalion) for a particular operation. The tanks formed up with the foot soldiers and preceded them in the assault. The Matildas were supported by the Bren Carriers of the infantry unit and followed by the riflemen on foot. Until the employment of the German 88mm Flak guns as anti-tank weapons, there was nothing that could stop such an attack.

# British Infantry Tank Company

1940

## Company Headquarters



Mark VI.

/ Capt. Co. Adjutant  
/ OR Gunner  
/ OR Driver



Mark II. Matilda

/ Major Company Commander  
/ OR Gunner  
/ OR Loader-Radio Operator  
/ OR Driver

## First Section



Mk.II. Matilda

/ Corp. Tank Commander  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver



Mk.II. Matilda

/ Sgt. Tank Commander  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver



Mk.II. Matilda

/ Lieut. Section Leader  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver

## Second Section



Mk.II. Matilda

/ Corp. Tank Commander  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver



Mk.II. Matilda

/ Sgt. Tank Commander  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver



Mk.II. Matilda

/ Lieut. Section Leader  
/ OR Gunner  
/ OR Loader-Radio Op.  
/ OR Driver

Third, Fourth and Fifth Sections are identical to First Section

## "B" Echelon



/ OR Dispatch Rider



Universal Bren Carrier

/ Sgt. Mechanic Sgt.  
/ OR Mechanic  
/ OR Driver



Humber Saloon

/ Sgt. Co. Sgt. Major  
/ OR Driver-Batman  
(Company Adjutant)



Austin 2-seater

/ OR Driver-Batman  
(Company Commander)



/ OR Dispatch Rider



15cwt. Truck,  
Signal

/ Sgt. Signal NCO  
/ OR Signaller  
/ OR Driver



15cwt. Truck,  
Co. Office

/ Sgt. QM Sergeant  
/ OR Clerk-Driver



/ OR Dispatch Rider



/ OR Dispatch Rider



/ OR Dispatch Rider



/ OR Dispatch Rider



# MODELER'S PAGE

The Tamiya 1:35th scale German Panther

What happens when two different modelers start-out to build the same kit, with no communications between them? How do their resulting models vary? Well, this was such an interesting idea that we tried it. The kit selected was the Tamiya 1:35th Scale Panther tank (which is certainly one of the best kits Tamiya has produced). The two modelers in our test were Steve Cobb, out Art Director, and Norb Meyer (the "Baron"), our resident Modeler. Their models are shown below.....



Steve Cobb's Panther tank was airbrushed in soft shades of red-brown over the basic sand-tan primer paint. It represents a Panther of the 3. Kompanie of SS-Panzer-Regiment 10. "Hohenstauffen" operating on the Eastern Front in 1945.



Both model Panthers have been given a coat of Zimmerit, the anti magnetic mine paste, working from original photographs, and reference data for better final results.....



Norb Meyer's model of the German Panther was also airbrushed, but in a much sharper pattern of dark green over the sand-tan base paint. He chose to model a Regimental Headquarter's tank, with extra antenna. The figure in the cupola really seems to make the vehicle come-to-life and resemble the real thing.



# Product Review:

## "Poly S" Paints

by James Steuard

The "Poly S" line of paints are "acrylic polymer" paints manufactured by the Floquil Products Co. They offer several distinct advantages to modelers, and there are a few disadvantages too. First of all, what is an "acrylic polymer" paint? Well, it's water soluble, which means that you can forget using thinner (of any kind) to clean brushes, or the air brush, or to thin the paint itself. You just use tap water. Sound good? An "acrylic polymer" paint also has no odor, no fumes, and is completely non-toxic. This means no more heavy paint odor (that clings for days) in your home, and there's no hazard from breathing the fumes. The paint sprays well through an air brush; it mixes well with other colors, and it covers well. A model dries to the touch in 5 minutes (or less), but it is not really dry for several days (until all of the water content evaporates); you can overspray that second camouflage color about four hours after the first coat.

The real disadvantage to "acrylic polymer" paints is that after they dry, nothing will re-liquify them. As the water evaporates, the coat of paint turns into a tough coat of plastic. Therefore, when you use these paints, keep a coffee-can full of water setting in your work area. As soon as you're done with the air brush (and paint cup) drop it into the water to keep the paint from drying! Otherwise, forget that old air brush! After it soaks for a few minutes, you can then clean the air brush by spraying water through it. Remember, you can ruin equipment (and brushes too!) by letting "acrylic's" dry in them. In spite of this shortcoming, I like the paints. They do a good job, and look fine on the model, and I'll never have to buy a can of thinner again. Most hobby shops are now carrying the "Poly S" line of paints (along with the regular Floquil); why not try a bottle of them on that next model, and see if they do a good job for you.....

# Product Review:

## Tamiya 1:35th Panzer II.

by Norb Meyer

There are two things that I would like to say about this kit right off-the-bat: Halleluja for the subject of the Panzer II., and Halleluja for the figures! A Panzer II. kit has been wanted by modelers for a long time, and Tamiya has finally come-out with a crewman that doesn't look vaguely like the Aurora embryos. Now, on to more serious matters.....

They say that to err is human, and someone definitely did when the molds were made up for this kit. The hull top and the hull bottom fit together like a size 5 glove on a size 8 hand; but eventually (with much sanding and swearing), they will fit together. The Japanese must really be turned on by little things that run with electric motors; as tiny as the Panzer II. is in 1:35 th scale, it's still got room for two batteries and an electric motor! It sure louses up the inside of the hull if you want to do anything else with it. Oh, well.....

The scale of the kit is true to 1:35th, as best we can determine. The front of the hull should scale-out as just under five-feet wide, and the kit is right on the money! The model is of the Panzerkampfwagen II., Ausführung F, which is the last version of this tank to be produced in the similar run. (The "Lynx" was the "L" version, but it bore little resemblance to the "A" through "F" models.) Back-converting of the kit will be little problem, since the only change in the suspension was minor modifications on the rear idler; the body style can also be back-dated without too much to do. Tamiya has shown their usual flair for adherence to detail, with remarkable success, although some minute corners were cut. Bolt heads, drilled holes. bump stops....they're all there. The front drive sprockets drive in the center of the track, as they should, and the road wheels are slightly convex. The turret is well done and has a working gun mount for the 7/LaS 100 2cm "bang-bang". If there is such a thing as "planned flash" on a kit, Tamiya has done it, since it seems that, although there is more flash than one would desire, it's all in the right places.

All-in-all, this is a fine kit that will look good on the shelf, or in that diorama, especially if put together with a little care and some super-detailing. Spend the "bucks"..... it will be worth it!

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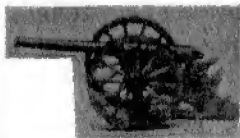
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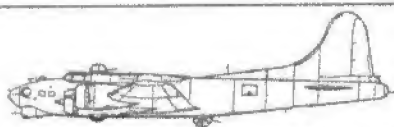
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Product Review: "Aron Alpha Quick-Set Adhesive" by Steve Cobb

A new product for cementing models that are made of materials other than plastics, such as lead. When using Aron Alpha #201, I found it to be all that it claims to be, in that it sets fast (seconds to minutes, depending on the materials being glued) and makes a strong bond. When working with lead and Aron Alpha #201, it is advisable to make sure that the parts fit together properly and are correctly aligned before cementing. Once the pieces are held together, run a bead of glue along the seam. This is probably the best way to glue when using #201 for three reasons: First, the glue will set immediately. Second, with this method, it is possible to avoid skin contact with the glue (Aron Alpha carries a warning about contact with skin or eyes and provides a pamphlet on proper handling of the glue). Third, the glue is in liquid form and when dry, it's clear. If you wish a slower drying cement, there's Aron Alpha #202.

When finished with the glue, it is advisable to store it in a cool dark place, such as your refrigerator. Aron Alpha #201 or #202 sells for about \$1.65 at your local hobby store, or write to the New York office: 200 Park Avenue, New York, N. Y. 10017 for more information.

### The Baron's Corner (Continued from Page 25)

18 feet and 9 inches. We can work this problem as in the first example, but there is a more accurate method. First divide the measurement into two parts; for example, 17 feet, and 1 foot 9 inches. Lay the straight edge connecting 17 feet and the 1:48th scale: the result is 4-1/4 inches. Now, re-lay the straight edge to connect the same scale and 1 foot 9 inches: the answer this time is 7/16 inch. Adding the two answers together will give the more accurate dimension; in our example, the answer is 4-11/16 inches.

Try this instrument. You will find that after two or three jobs that you have solved, you will wonder how you got along without it in the past.

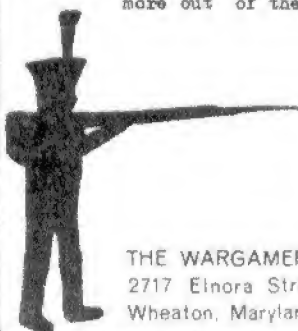
### "Marder"; New Standard SPW of the Bundeswehr (Continued from Page 11)

look at the "Marder" as a "battle taxi" (which appears to continue to be the concept in the U.S. Army), but instead as a combat vehicle which only dismounts the infantry group when the situation calls for it. In most cases, the infantrymen will eat, sleep, live and fight in their SPW, which is primarily designed to accompany the Leopard in the assault. Whether or not the "Marder" accomplishes this task is a question for the future.

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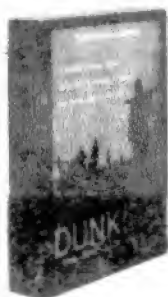
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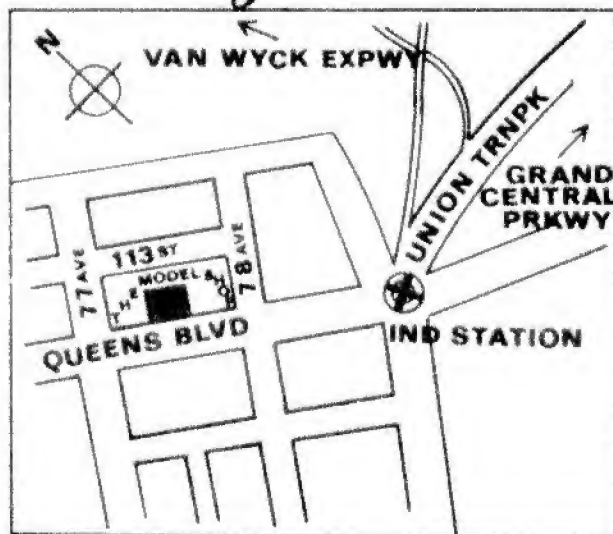
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